Subject: Re: log scale colorbar in IDL 8.0
Posted by David Fanning on Wed, 18 May 2011 14:35:35 GMT
View Forum Message <> Reply to Message

Kim writes:

>
> Hello,
>
> I have just started using the new graphics routines in IDL 8.0/8.1 and
> am trying to incorporate them into an extensive set of customized
> plotting and image type routines. I am able to use the IMAGE function
> to display some log-normally distributed data, however I am unable to
> create a colorbar that reflects the log-transformed data.
>
> Here is a simplified example:
> ; Read the data array
> ; Convert the scaled float array (using ALOG10) to a byte array
> im = IMAGE(bytedata)
> cb =
> COLORBAR(target=im,tickvalues=[0.01,0.03,0.1,0.3,1.0,3.0,10. 0,30.0],tickname=['.
> 01','.03','.1','.3','1','3','10','30'], title='Log Data')
>
> Some specific questions:
> 1) How do you scale the color bar so that it reflects the scaled data?
> 2) If tickvalues are supplied, can you also input ticknames? In the
> above example, the supplied ticknames are not used and instead the
> ticknames are derived from the tickvalues. The only way I have been
> able to use the ticknames is to remove the tickvalues keyword.
> 3) Is it possible to set minimum and maximum color or value ranges?
> For example, in one of my commonly used rgb_tables, the 0 value is
> black and above 250 are various shades of gray. How do I set it so
> that mincolor=1 and maxcolor=250?
> 4) Is it possible to create a colorbar that is independent of some
> specified data? It would be very useful to be able to create a
> colorbar just using a user supplied data range instead of being
> directly linked to a specfic data field. There are times when I need
> to create stand alone colorbars and I can't figure out how to do this
> with the COLORBAR function.

No takers!?

I'd propose another contest to write a log-scaled color bar function
in the iTool style, but I'm not sure I could handle another three
months of complete silence. :-)

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: log scale colorbar in IDL 8.0
Posted by pgrigis on Wed, 18 May 2011 15:28:18 GMT
View Forum Message <> Reply to Message

On May 18, 10:35 am, David Fanning <n...@idlcoyote.com> wrote:
> Kim writes:
>
>> Hello,
>
>> I have just started using the new graphics routines in IDL 8.0/8.1 and
>> am trying to incorporate them into an extensive set of customized
>> plotting and image type routines. I am able to use the IMAGE function
>> to display some log-normally distributed data, however I am unable to
>> create a colorbar that reflects the log-transformed data.
>
>> Here is a simplified example:
>> ; Read the data array
>> ; Convert the scaled float array (using ALOG10) to a byte array
>> im = IMAGE(bytedata)
>> cb =
>> COLORBAR(target=im,tickvalues=[0.01,0.03,0.1,0.3,1.0,3.0,10. 0,30.0],tickname=['.
>> 01','.03','.1','.3','1','3','10','30'], title='Log Data')
>
>> Some specific questions:
>> 1) How do you scale the color bar so that it reflects the scaled data?
>> 2) If tickvalues are supplied, can you also input ticknames? In the
>> above example, the supplied ticknames are not used and instead the
>> ticknames are derived from the tickvalues. The only way I have been
>> able to use the ticknames is to remove the tickvalues keyword.
>> 3) Is it possible to set minimum and maximum color or value ranges?
>> For example, in one of my commonly used rgb_tables, the 0 value is
>> black and above 250 are various shades of gray. How do I set it so
>> that mincolor=1 and maxcolor=250?
>> 4) Is it possible to create a colorbar that is independent of some
>> specified data? It would be very useful to be able to create a
>> colorbar just using a user supplied data range instead of being
>> directly linked to a specfic data field. There are times when I need
>> to create stand alone colorbars and I can't figure out how to do this

>> with the COLORBAR function.
>
> No takers!?
>
> I'd propose another contest to write a log-scaled color bar function
> in the iTool style, but I'm not sure I could handle another three
> months of complete silence. :-)
>
> 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.")

Do the coyote graphics commands have options to display
images with logarithmic axes? If not, they should, it's
a very useful feature...

Ciao,
Paolo

Subject: Re: log scale colorbar in IDL 8.0
Posted by David Fanning on Wed, 18 May 2011 15:34:09 GMT
View Forum Message <> Reply to Message

Paolo writes:

> Do the coyote graphics commands have options to display
> images with logarithmic axes? If not, they should, it's
> a very useful feature...

Of course. :-)

http://www.idlcoyote.com/graphics_tips/logcb.html

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: log scale colorbar in IDL 8.0
Posted by pgrigis on Wed, 18 May 2011 15:43:21 GMT
View Forum Message <> Reply to Message

On May 18, 11:34 am, David Fanning <n...@idlcoyote.com> wrote:
> Paolo writes:
>> Do the coyote graphics commands have options to display
>> images with logarithmic axes? If not, they should, it's
>> a very useful feature...
>
> Of course. :-)
>
> http://www.idlcoyote.com/graphics_tips/logcb.html
>
> 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.")

Well I meant, in that case, if you could display the
elevation map with, say, the y-axis logarithmically scaled,
such that one pixel close to the bottom would cover a bigger
range then one close to the top.

Ciao,
Paolo

Subject: Re: log scale colorbar in IDL 8.0
Posted by David Fanning on Wed, 18 May 2011 16:30:26 GMT
View Forum Message <> Reply to Message

Paolo writes:

> Well I meant, in that case, if you could display the
> elevation map with, say, the y-axis logarithmically scaled,

> such that one pixel close to the bottom would cover a bigger
> range then one close to the top.

Well, we have had this discussion before. Do you mean
something like this, where the color vectors are
also log scaled?

  http://www.idlcoyote.com/ip_tips/logscaledbar.html

Logarithmic color bars always confuse me. I don't think
there is universal agreement as to what exactly is meant
by the term. :-(

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: log scale colorbar in IDL 8.0
Posted by pgrigis on Wed, 18 May 2011 17:00:55 GMT
View Forum Message <> Reply to Message

On May 18, 12:30 pm, David Fanning <n...@idlcoyote.com> wrote:
> Paolo writes:
>> Well I meant, in that case, if you could display the
>> elevation map with, say, the y-axis logarithmically scaled,
>> such that one pixel close to the bottom would cover a bigger
>> range then one close to the top.
>
> Well, we have had this discussion before. Do you mean
> something like this, where the color vectors are
> also log scaled?
>
> http://www.idlcoyote.com/ip_tips/logscaledbar.html
>
> Logarithmic color bars always confuse me. I don't think
> there is universal agreement as to what exactly is meant
> by the term. :-(
>
> 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.")

Yes, we had. Well I wasn't thinking in term
of color bars anymore but general images.
For instance, a logarithmic y-axis is used often
to produce spectrograms - see for instance:

http://swaves.gsfc.nasa.gov/content_images/swavesf1.png

note the logarithmic y-scaling

Ciao,
Paolo

Subject: Re: log scale colorbar in IDL 8.0
Posted by David Fanning on Wed, 18 May 2011 17:26:06 GMT
View Forum Message <> Reply to Message

Paolo writes:

> Yes, we had. Well I wasn't thinking in term
> of color bars anymore but general images.
> For instance, a logarithmic y-axis is used often
> to produce spectrograms - see for instance:
>
> http://swaves.gsfc.nasa.gov/content_images/swavesf1.png
>
> note the logarithmic y-scaling

Don't you have something like this already, Paolo?
I thought you built this. If you want to turn it
into a Coyote Graphic routine, it's pretty simple.
I'll sell you a book that explains it in detail. ;-)

Actually, it's so simple you probably won't need
a book. Probably it is only a matter of using
Coyote Graphics routines internally, and it will
probably just work! (Maybe with some color modifications

so it can work in both decomposed and indexed color.)

But, if you just want log scaling on the axes, that's
already built into cgImage:

```
IDL> image = scale_vector(cgdemodata(7), 1, 1000)
IDL> cgimage, image, /axes, /scale, $
       axkeywords={ylog:1, yrange:[1,1000]}
```

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: log scale colorbar in IDL 8.0
Posted by Kim on Wed, 18 May 2011 17:59:25 GMT
View Forum Message <> Reply to Message

Any suggestions to the original questions? The routines I have been using to generate colorbar images work quite well and I did look into converting it to be compatible with the new graphics routines, but I was hoping there would be an easier way. I think there is some good functionality with the new graphics routines and I like that the text is much cleaner (less pixelated) compared to the colorbar images I have created in the past.
Kim

Subject: Re: log scale colorbar in IDL 8.0
Posted by pgrigis on Wed, 18 May 2011 18:27:25 GMT
View Forum Message <> Reply to Message

On May 18, 1:26 pm, David Fanning <n...@idlcoyote.com> wrote:
> Paolo writes:
>> Yes, we had. Well I wasn't thinking in term
>> of color bars anymore but general images.
>> For instance, a logarithmic y-axis is used often
>> to produce spectrograms - see for instance:
>

>> http://swaves.gsfc.nasa.gov/content_images/swavesf1.png
>
>> note the logarithmic y-scaling
>
> Don't you have something like this already, Paolo?
> I thought you built this. If you want to turn it
> into a Coyote Graphic routine, it's pretty simple.
> I'll sell you a book that explains it in detail. ;-)

Yes I do,

but I was worried that in the CG era people may shun
older-fashioned programs that do not have those fancy
features like automatic resizing etc.

The trick is to choose a good interpolation scheme
for the pixel values - the one I have in my
http://hea-www.cfa.harvard.edu/~pgrigis/idl_stuff/pg_plotima ge.pro
may not be suitable for all uses though.

Ciao,
Paolo

>
> Actually, it's so simple you probably won't need
> a book. Probably it is only a matter of using
> Coyote Graphics routines internally, and it will
> probably just work! (Maybe with some color modifications
> so it can work in both decomposed and indexed color.)
>
> But, if you just want log scaling on the axes, that's
> already built into cgImage:
>
> IDL> image = scale_vector(cgdemodata(7), 1, 1000)
> IDL> cgimage, image, /axes, /scale, $
> axkeywords={ylog:1, yrange:[1,1000]}
>
> 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: log scale colorbar in IDL 8.0
Posted by David Fanning on Wed, 18 May 2011 18:44:54 GMT
View Forum Message <> Reply to Message

Paolo writes:

> but I was worried that in the CG era people may shun
> older-fashioned programs that do not have those fancy
> features like automatic resizing etc.

On the contrary. I predict that after a brief
fling with the pretty, young thing, most of us
will be coming home with the one who brung us
and the one who gets the job done. :-)

> The trick is to choose a good interpolation scheme
> for the pixel values - the one I have in my
> http://hea-www.cfa.harvard.edu/~pgrigis/idl_stuff/pg_plotima ge.pro
> may not be suitable for all uses though.

Oh, there's always a trick. But, at least with
direct graphics we can always program up something
different if we don't like what we have. Not much
chance of getting these zombie graphics functions
to do much different from what they are taught. ;-)

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: log scale colorbar in IDL 8.0
Posted by David Fanning on Wed, 18 May 2011 18:58:33 GMT
View Forum Message <> Reply to Message

Kim writes:

> Any suggestions to the original questions? The routines I have been
> using to generate colorbar images work quite well and I did look into
> converting it to be compatible with the new graphics routines, but I

> was hoping there would be an easier way.

As did we all. But I am afraid we have gotten started on the wrong foot, and the way forward looks as confusing as the way back. I think we are waiting for someone to have an idea that is outside our current box.

> I think there is some good
> functionality with the new graphics routines and I like that the text
> is much cleaner (less pixelated) compared to the colorbar images I
> have created in the past.

Yes, decent text and simple graphics with object functionality could be a marriage all of us could get behind. One wonders how much sales need to slow to foster new thinking in this direction.

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: log scale colorbar in IDL 8.0
Posted by David Fanning on Thu, 19 May 2011 02:54:38 GMT
View Forum Message <> Reply to Message

Paolo writes:

> but I was worried that in the CG era people may shun
> older-fashioned programs that do not have those fancy
> features like automatic resizing etc.
>
> The trick is to choose a good interpolation scheme
> for the pixel values - the one I have in my
> http://hea-www.cfa.harvard.edu/~pgrigis/idl_stuff/pg_plotima ge.pro
> may not be suitable for all uses though.

I made a Coyote Graphics command out of your pg_plotimage program. You can find it here:

http://www.idlcoyote.com/misc/pg_plotimage.pro

It took about a half hour. You can run your example
program and display the output in a resizeable
cgWindow like this:

```
loadct,5
im=dist(128,128)
x=findgen(128)
y=findgen(128)
pg_plotimage,im,x,y,xrange=[5,100],$
   yrange=[5,100],/xstyle,/ystyle,/xlog,/window
```

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: log scale colorbar in IDL 8.0
Posted by Fabzou on Thu, 19 May 2011 05:20:22 GMT
View Forum Message <> Reply to Message

>> Paolo writes:
>> but I was worried that in the CG era people may shun
>> older-fashioned programs that do not have those fancy
>> features like automatic resizing etc.
> David Fanning writes:
> On the contrary. I predict that after a brief
> fling with the pretty, young thing, most of us
> will be coming home with the one who brung us
> and the one who gets the job done. :-)

Well, reading the discussion going on between those two,
I'll say it won't finish by now.
Let's say Paolo will never use CG routines for the sake of it, and let
people decide by themselves ;-)
The ones not having IDL8 have no choice, though.

Subject: Re: log scale colorbar in IDL 8.0
Posted by David Fanning on Thu, 19 May 2011 14:06:09 GMT
View Forum Message <> Reply to Message

David Fanning writes:

> I made a Coyote Graphics command out of your pg_plotimage
> program. You can find it here:
>
> http://www.idlcoyote.com/misc/pg_plotimage.pro

There were a couple of things I couldn't get working
quite right last night. After thinking about it for
awhile this morning, I've fixed the problems and
added a LAYOUT keyword that works properly both on
the display and in PostScript.

> It took about a half hour. You can run your example
> program and display the output in a resizeable
> cgWindow like this:
>
> loadct,5
> im=dist(128,128)
> x=findgen(128)
> y=findgen(128)
> pg_plotimage,im,x,y,xrange=[5,100],$
> yrange=[5,100],/xstyle,/ystyle,/xlog,/window

You can use the LAYOUT keyword like this:

```
pg_plotimage,im,x,y,xrange=[5,100],$
  yrange=[5,100],/xstyle,/ystyle,/xlog, layout=[2,2,2]
```

Same place.

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: log scale colorbar in IDL 8.0
Posted by pgrigis on Thu, 19 May 2011 15:12:30 GMT
View Forum Message <> Reply to Message

On May 19, 1:20 am, Fabzou <fabien.mauss...@tu-berlin.de> wrote:
>>> Paolo writes:
>>> but I was worried that in the CG era people may shun
>>> older-fashioned programs that do not have those fancy
>>> features like automatic resizing etc.
>> David Fanning writes:
>> On the contrary. I predict that after a brief
>> fling with the pretty, young thing, most of us
>> will be coming home with the one who brung us
>> and the one who gets the job done. :-)
>
> Well, reading the discussion going on between those two,
> I'll say it won't finish by now.
> Let's say Paolo will never use CG routines for the sake of it, and let
> people decide by themselves ;-)

Well, this would be a very wrong conclusion.

Ciao,
Paolo

> The ones not having IDL8 have no choice, though.

Subject: Re: log scale colorbar in IDL 8.0
Posted by pgrigis on Thu, 19 May 2011 15:29:49 GMT
View Forum Message <> Reply to Message

On May 18, 10:54 pm, David Fanning <n...@idlcoyote.com> wrote:
> Paolo writes:
>> but I was worried that in the CG era people may shun
>> older-fashioned programs that do not have those fancy
>> features like automatic resizing etc.
>
>> The trick is to choose a good interpolation scheme
>> for the pixel values - the one I have in my
>> http://hea-www.cfa.harvard.edu/~pgrigis/idl_stuff/pg_plotima ge.pro
>> may not be suitable for all uses though.
>
> I made a Coyote Graphics command out of your pg_plotimage
> program. You can find it here:
>
> http://www.idlcoyote.com/misc/pg_plotimage.pro
>
> It took about a half hour. You can run your example
> program and display the output in a resizeable
> cgWindow like this:

>
> loadct,5
> im=dist(128,128)
> x=findgen(128)
> y=findgen(128)
> pg_plotimage,im,x,y,xrange=[5,100],$
> yrange=[5,100],/xstyle,/ystyle,/xlog,/window
>

Ah, very cool! The power of the coyote graphics is strong with you! :)
By the way do feel free to use my code for any purpose whatsoever -
it's
in the public domain.

The problem I personally have with cg (and this is entirely the fault
of the way IDL manages namespace) is that it can't be run within
solarsoft,
since solarsoft did seem fit to steal some coyote routines (without
renaming
them) so now I have several mutually incompatible version of some
coyote
routines...

Ciao,
Paolo

> 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: log scale colorbar in IDL 8.0
Posted by David Fanning on Thu, 19 May 2011 15:42:39 GMT
View Forum Message <> Reply to Message

Paolo writes:

> Ah, very cool! The power of the coyote graphics is strong with you! :)
> By the way do feel free to use my code for any purpose whatsoever -
> it's

> in the public domain.

I have thought about creating a "public" Coyote Graphics space, where people can submit programs that make use of the CGS system. I don't personally want to maintain these programs (I have my hands full most days maintaining my own!), but I would like to make them available to the CGS community.

Perhaps I could put this one in there as the inaugural contribution. :-)

>
> The problem I personally have with cg (and this is entirely the fault
> of the way IDL manages namespace) is that it can't be run within
> solarsoft,
> since solarsoft did seem fit to steal some coyote routines (without
> renaming
> them) so now I have several mutually incompatible version of some
> coyote
> routines...

Well, I have tried very hard to fix this problem, even talking to some of the Solar Soft people several weeks ago. I thought I had made all the Coyote Library routines compatible with the Solar Soft routines. (Have you downloaded a recent Coyote Library?)

If you are having problems with a specific routine, I'd be happy to try to fix it. Part of the name change business (FSC_Plot -> cgPlot) was to fix this very problem!

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: log scale colorbar in IDL 8.0
Posted by pgrigis on Thu, 19 May 2011 15:59:17 GMT
View Forum Message <> Reply to Message

On May 18, 10:54 pm, David Fanning <n...@idlcoyote.com> wrote:
> Paolo writes:
>> but I was worried that in the CG era people may shun
>> older-fashioned programs that do not have those fancy
>> features like automatic resizing etc.
>
>> The trick is to choose a good interpolation scheme
>> for the pixel values - the one I have in my
>> http://hea-www.cfa.harvard.edu/~pgrigis/idl_stuff/pg_plotima ge.pro
>> may not be suitable for all uses though.
>
> I made a Coyote Graphics command out of your pg_plotimage
> program. You can find it here:
>
> http://www.idlcoyote.com/misc/pg_plotimage.pro
>
> It took about a half hour. You can run your example
> program and display the output in a resizeable
> cgWindow like this:
>
> loadct,5
> im=dist(128,128)
> x=findgen(128)
> y=findgen(128)
> pg_plotimage,im,x,y,xrange=[5,100],$
> yrange=[5,100],/xstyle,/ystyle,/xlog,/window

By the way, the cg version doesn't seem to be properly
honoring the axis ranges. For instance, a y range of
[-100,100] should show an image only in the upper half
of the axis, as the image y-range is only [0,127]...

(well one could wonder why would you plot that way...
but the idea behind pg_plotimage was to plot an image the
same way you would use "plot"...)

Ciao,
Paolo

>
> 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.")
