Subject: Re: Log-scaled colorbar example
Posted by David Fanning on Mon, 23 May 2011 14:21:41 GMT
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Kim writes:

> After several unsuccessful attempts at trying to generate a log-scaled
> colorbar using the COLORBAR function, I came up with a way to manually
> create the colorbar. If someone could please look at the code and let
> me know if this seems correct I would really appreciate it.

I can't get the first part of the program to run. In fact, I can't
get past the first line in the program that creates the graphics
window. I'm running IDL 8.1. :-(

```
IDL> .go
% Attempt to call undefined procedure/function: 'AXIS_PROPERTIES'.
% Error occurred at: GRAPHIC           22 C:\Program Files\ITT\IDL
\IDL80\lib\graphics\graphic_error.pro
%                WINDOW           35 C:\Program Files\ITT\IDL
\IDL80\lib\graphics\window.pro
%                $MAIN$           1 C:\IDL\coyote_8\cbar_example_
1.pro
% Execution halted at: $MAIN$           1 C:\IDL\coyote_8
\cbar_example_1.pro
```

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-scaled colorbar example
Posted by David Fanning on Mon, 23 May 2011 14:26:22 GMT
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David Fanning writes:

> I can't get the first part of the program to run. In fact, I can't
> get past the first line in the program that creates the graphics
> window

Well, hang on, I can't even create a simple plot this morning.
The only thing I have done so far is change my !DLM_DIR. But
that has seemed to cause some havoc.

Let me see if I can figure this out. :-(

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
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Subject: Re: Log-scaled colorbar example
Posted by David Fanning on Mon, 23 May 2011 14:41:17 GMT
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David Fanning writes:

> Well, hang on, I can't even create a simple plot this morning.
> The only thing I have done so far is change my !DLM_DIR. But
> that has seemed to cause some havoc.
>
> Let me see if I can figure this out. :-(

My fault, I guess. There was some confusion about
which version of IDL I was running. Setting everything
back to "defaults", then trying to set my !DLM_PATH
again in IDL 8.1 has seemed to work.

Anyway, your code runs fine now. Looks good. :-)

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.

Subject: Re: Log-scaled colorbar example
Posted by David Fanning on Mon, 23 May 2011 15:37:38 GMT
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Kim writes:

> After several unsuccessful attempts at trying to generate a log-scaled
> colorbar using the COLORBAR function, I came up with a way to manually
> create the colorbar. If someone could please look at the code and let
> me know if this seems correct I would really appreciate it.

Well, your plots are beautiful, but I am not sure they
are correct. :-)

Here is code that I *know* produces the correct result:

```
image = cgDemoData(7) ; World Elevation Data
image = Scale_Vector(image, 1, 2500L)
logImage = Alog10(image)
s = Size(image, /Dimensions)
cgDisplay, 600, 400, Title='Logarithmic Color Bar'
LoadCT, 33, /Silent, NColors=254
pos = [0.1, 0.1, 0.8, 0.9]
cgImage, BytScl(logImage, Top=253), Position=pos, /Keep_Aspect
cgPlot, [0], [0], /NoErase, XRange=[0,s[0]], YRange=[0,s[1]], $
  XStyle=1, YStyle=1, Color=cgColor('black', 255), Position=pos
cgColorbar, /YLOG, YTICKS=0, Range=[Min(image), Max(image)], $
  NColors=254, Color=cgColor('black', 255), /Vertical
END
```

How do I know? I can check it.

```
IDL> cgImageInfo, image
```

You can click in the graphics window and the image position
and value will be printed in the command log. (Right click
to exit the cgImageInfo program.) You can clearly see that
the image value corresponds to the colors on the color bar.

Can you reproduce this figure and color bar with your
code? (I haven't been able to, but I've spent less than
an hour trying.) When you can reproduce this figure, then
I think you are on the right track.

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.idlcoyote.com/
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Subject: Re: Log-scaled colorbar example
Posted by Kim on Tue, 24 May 2011 14:42:05 GMT
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> Can you reproduce this figure and color bar with your
> code? (I haven't been able to, but I've spent less than
> an hour trying.) When you can reproduce this figure, then
> I think you are on the right track.
>
> Cheers,
>
> David
>

I think I was able to reproduce your colorbar and generate a similar graphic as the example I provided above. I did find an error in the original code with the tickmarks and added /xlog to the plot command. I would appreciate you opinion on the following example.
Thank you for your assistance,
Kim

```
; Read image
  image = cgDemoData(7) ; World Elevation Data
  image = Scale_Vector(image, 1, 2500L)
  logImage = Alog10(image)
  X = FLOAT([MIN(IMAGE),MAX(IMAGE)])
  XLOG = [MIN(LOGIMAGE),MAX(LOGIMAGE)]

; Create the color bar image
  PX = 200 & PY = 20
  RGB_TABLE=33
  COLOR_RANGE = [0.0,255.0]
  NCOLORS = COLOR_RANGE(1) - COLOR_RANGE(0) + 1
  SARR = X(0)+((X(1)-X(0))/
```

```
256)*FINDGEN(256)                    ; scale the array to 256
intervals (adapted from the jhuapl routine maken)
  Z = REFORM(((SARR - X(0))*FLOAT(COLOR_RANGE(1)-COLOR_RANGE(0))/(X(1)-
X(0)) + COLOR_RANGE(0)),[256,1])<255  ; adapted from the jhuapl
routine scalearray
  XX = FIX(COLOR_RANGE(0)+((COLOR_RANGE(1)-COLOR_RANGE(0))/
(NCOLORS-1))*FINDGEN(PX))                    ; create a scaled x
array
  YY = FIX(COLOR_RANGE(0)+((COLOR_RANGE(1)-COLOR_RANGE(0))/
(NCOLORS-1))*FINDGEN(PY))                    ; create a scaled y
array
  BARARR = INTERPOLATE(Z,XX,YY,/
GRID)                          ; interpolate to fill in the
image array

; Linear example
  W = WINDOW(DIMENSIONS=[800,800],LAYOUT=[2,1,1])
  IMG = IMAGE(IMAGE,RGB_TABLE=RGB_TABLE,/
CURRENT,LAYOUT=[2,1,1],TITLE='Linear')
  CB = COLORBAR(TARGET=IMG,TITLE='IDL')
  POS =
CB.POSITION                                  ;
determine position for the second colorbar
  POS(1) = pos(1)-.1
  POS(3) = POS(3)-.1
  BARIMG = IMAGE(BARARR,/
CURRENT,POSITION=POS,RGB_TABLE=RGB_TABLE)    ; diplay the bar image
then overplot the tick values
  P      = PLOT(X,
 [0,1],POSITION=POS,XRANGE=X,YRANGE=[0,1],XTICKLEN=0.25,MIN_V
ALUE=X(0),MAX_VALUE=X(1),XMINOR=4,YMINOR=0,YMAJOR=0,XTITLE=' CUSTOM',/
NODATA,/CURRENT,AXIS_STYLE=1)

; Log example
  IMG2 = IMAGE(LOGIMAGE,RGB_TABLE=RGB_TABLE,/
CURRENT,LAYOUT=[2,1,2],TITLE='Log Scales')
  CB = COLORBAR(TARGET=IMG2,TITLE='IDL')
  POS = CB.POSITION
  POS(1) = pos(1)-.1
  POS(3) = POS(3)-.1
  BARIMG = IMAGE(BARARR,/
CURRENT,POSITION=POS,RGB_TABLE=RGB_TABLE)
  P = PLOT(XLOG,[0,1],/
 XLOG,POSITION=POS,XRANGE=X,YRANGE=[0,1],XTICKLEN=0.25,MIN_VA
LUE=X(0),MAX_VALUE=(1),XMINOR=4,YMINOR=0,YMAJOR=0,XTITLE='CU STOM',/
NODATA,/CURRENT,AXIS_STYLE=1)
```

Subject: Re: Log-scaled colorbar example
Posted by Kim on Tue, 24 May 2011 14:56:15 GMT
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> Can you reproduce this figure and color bar with your
> code? (I haven't been able to, but I've spent less than
> an hour trying.) When you can reproduce this figure, then
> I think you are on the right track.

> Cheers,

> David

I think I was able to reproduce your colorbar and generate a similar
graphic as the example I provided above. I did find an error in the
original code with the tickmarks and added /xlog to the plot command.
I would appreciate you opinion on the following example.
Thank you for your assistance,
Kim

```
; Read image
  image = cgDemoData(7) ; World Elevation Data
  image = Scale_Vector(image, 1, 2500L)
  logImage = Alog10(image)
  X = FLOAT([MIN(IMAGE),MAX(IMAGE)])
  XLOG = [MIN(LOGIMAGE),MAX(LOGIMAGE)]


; Create the color bar image
  PX = 200 & PY = 20
  RGB_TABLE=33
  COLOR_RANGE = [0.0,255.0]
  NCOLORS = COLOR_RANGE(1) - COLOR_RANGE(0) + 1
  SARR = X(0)+((X(1)-X(0))/
256)*FINDGEN(256)                    ; scale the array to 256
intervals (adapted from the jhuapl routine maken)
  Z = REFORM(((SARR - X(0))*FLOAT(COLOR_RANGE(1)-COLOR_RANGE(0))/(X(1)-
X(0)) + COLOR_RANGE(0)),[256,1])<255  ; adapted from the jhuapl
routine scalearray
  XX = FIX(COLOR_RANGE(0)+((COLOR_RANGE(1)-COLOR_RANGE(0))/
(NCOLORS-1))*FINDGEN(PX))                    ; create a scaled x
array
  YY = FIX(COLOR_RANGE(0)+((COLOR_RANGE(1)-COLOR_RANGE(0))/
(NCOLORS-1))*FINDGEN(PY))                    ; create a scaled y
array
```

```
  BARARR = INTERPOLATE(Z,XX,YY,/
GRID)                          ; interpolate to fill in the
image array

; Linear example
  W = WINDOW(DIMENSIONS=[800,800],LAYOUT=[2,1,1])
  IMG = IMAGE(IMAGE,RGB_TABLE=RGB_TABLE,/
CURRENT,LAYOUT=[2,1,1],TITLE='Linear')
  CB = COLORBAR(TARGET=IMG,TITLE='IDL')
  POS =
CB.POSITION                                    ;
determine position for the second colorbar
  POS(1) = pos(1)-.1
  POS(3) = POS(3)-.1
  BARIMG = IMAGE(BARARR,/
CURRENT,POSITION=POS,RGB_TABLE=RGB_TABLE)    ; diplay the bar image
then overplot the tick values
  P      = PLOT(X,
 [0,1],POSITION=POS,XRANGE=X,YRANGE=[0,1],XTICKLEN=0.25,MIN_V
ALUE=X(0),MAX_V-
 ALUE=X(1),XMINOR=4,YMINOR=0,YMAJOR=0,XTITLE='CUSTOM',/NODATA ,/
CURRENT,AXIS_STYLE=1)


; Log example
  IMG2 = IMAGE(LOGIMAGE,RGB_TABLE=RGB_TABLE,/
CURRENT,LAYOUT=[2,1,2],TITLE='Log Scales')
  CB = COLORBAR(TARGET=IMG2,TITLE='IDL')
  POS = CB.POSITION
  POS(1) = pos(1)-.1
  POS(3) = POS(3)-.1
  BARIMG = IMAGE(BARARR,/CURRENT,POSITION=POS,RGB_TABLE=RGB_TABLE)
  P = PLOT(XLOG,[0,1],/
 XLOG,POSITION=POS,XRANGE=X,YRANGE=[0,1],XTICKLEN=0.25,MIN_VA
LUE=X(0),MAX_VA-
 LUE=(1),XMINOR=4,YMINOR=0,YMAJOR=0,XTITLE='CUSTOM',/NODATA,/
CURRENT,AXIS_STYLE=1)
```

Subject: Re: Log-scaled colorbar example
Posted by David Fanning on Tue, 24 May 2011 15:27:09 GMT
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Kim writes:

> I think I was able to reproduce your colorbar and generate a similar
> graphic as the example I provided above. I did find an error in the
> original code with the tickmarks and added /xlog to the plot command.

> I would appreciate you opinion on the following example.

This seems to be working correctly now. Can you make
a general purpose routine out of it, so it can be
called as, say, a function?

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-scaled colorbar example
Posted by Kim on Tue, 24 May 2011 15:34:52 GMT
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On May 24, 11:27 am, David Fanning <n...@idlcoyote.com> wrote:
> Kim writes:
>> I think I was able to reproduce your colorbar and generate a similar
>> graphic as the example I provided above. I did find an error in the
>> original code with the tickmarks and added /xlog to the plot command.
>> I would appreciate you opinion on the following example.
>
> This seems to be working correctly now. Can you make
> a general purpose routine out of it, so it can be
> called as, say, a function?
>

That is my plan, but it will probably take some time make it versatile
and completely functional.
Kim
