Subject: Re: Simple animation?
Posted by Liam E. Gumley on Tue, 10 Sep 2002 21:26:07 GMT
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Shawn wrote:
> I recently tried to animate the change in my data with time. I
> found that if I plotted to the same window, it would over plot the old
> data, which was good, but it also redraws the axis every time as well,
> which causes a lot of "flashing". Is it possible to tell IDL to only
> redraw the data and to leave the axis alone?

Try plotting the first dataset with PLOT, and subsequent datasets with
OPLOT.

Cheers,
Liam.
Practical IDL Programming
http://www.gumley.com/

Subject: Re: Simple animation?
Posted by David Fanning on Wed, 11 Sep 2002 03:02:01 GMT
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Liam E. Gumley (Liam.Gumley@ssec.wisc.edu) writes:

> Shawn wrote:
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Well, that wouldn't animate the plot, really. Just
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Try this. Create a pixmap window the same size
as your display window. Draw your plots in the
pixmap window, then use the DEVICE COPY technique
to copy the contents of the pixmap window to the
display window. This will result in a flicker-free
animation. :-)

Cheers,

David

--
David W. Fanning, Ph.D.
Fanning Software Consulting, Inc.
Phone: 970-221-0438, E-mail: david@dfanning.com
Coyote's Guide to IDL Programming: http://www.dfanning.com/
Toll-Free IDL Book Orders: 1-888-461-0155

Subject: Re: Simple animation?
Posted by Liam E. Gumley on Wed, 11 Sep 2002 14:47:49 GMT
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David Fanning wrote:
> Liam E. Gumley (Liam.Gumley@ssec.wisc.edu) writes:
>
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> animation. :-)

I initially started writing a reply that included this exact advice. But on rereading the original post, I thought a simpler solution might be required.

However as David says, DEVICE COPY will give you true animation. Here's an example of Brownian motion animation from chapter 5 of my book:

```
PRO BROWNIAN

;- Create visible window, and initialize plot
xsize = 640
```

```
ysize = 512
window, /free, xsize=xsize, ysize=ysize
viswin = !d.window
plot, [0], /nodata, xrange=[-1, 1], yrange=[-1, 1]

;- Create pixmap window, and copy the visible window
window, /free, /pixmap, xsize=xsize, ysize=ysize
pixwin = !d.window
device, copy=[0, 0, xsize, ysize, 0, 0, viswin]

;- Set animation parameters
nframes = 250
npoints = 50
temp = 0.02
seed = -1L
x = randomn(seed, npoints) * 0.1
y = randomn(seed, npoints) * 0.1

;- Create Brownian motion animation in visible window
wset, viswin
for i = 1L, nframes do begin
  device, copy=[0, 0, xsize, ysize, 0, 0, pixwin]
  plots, x, y, psym=1
  x = x + temp * randomn(seed, npoints)
  y = y + temp * randomn(seed, npoints)
endfor

END
```

You can play with the values of NFRAMES, NPOINTS, and TEMP to vary the length and fluidity of the animation.

Cheers,
Liam.
Practical IDL Programming
http://www.gumley.com/

Subject: Re: Simple animation?
Posted by R.Bauer on Wed, 11 Sep 2002 16:09:25 GMT

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Shawn wrote:
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> which causes a lot of "flashing". Is it possible to tell IDL to only

> redraw the data and to leave the axis alone?
> Thanks,
> Shawn

Dear Shawn,

if you have a look at this example from our idl exercises
http://www.fz-juelich.de/vislab/idl-beispiele/Darstellung/An imation/bar_go.pro

The full link is
http://www.fz-juelich.de/vislab/software/idl_samples/IDL-Bei spielsammlung.html

Follow IDL-Beispielsammlung->Darstellung->Animation

This examples show in different to pixmap which is described by Liam the
usage of displaying a series of images stored in a 3-d Array.
Device copy and pixmap is the fastest way but there is a limitation of
128 possible pixmap windows.

regards

Reimar

--
Reimar Bauer

Institut fuer Stratosphaerische Chemie (ICG-I)
Forschungszentrum Juelich
email: R.Bauer@fz-juelich.de
---------- -------
a IDL library at ForschungsZentrum Juelich
http://www.fz-juelich.de/icg/icg-i/idl_icglib/idl_lib_intro. html
========== =======

Subject: Re: Simple animation?
Posted by David Fanning on Wed, 11 Sep 2002 16:24:24 GMT
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Reimar Bauer (R.Bauer@fz-juelich.de) writes:

> This examples show in different to pixmap which is described by Liam the
> usage of displaying a series of images stored in a 3-d Array.

> Device copy and pixmap is the fastest way but there is a limitation of
> 128 possible pixmap windows.

Uh, I think Liam's example uses *one* pixmap window. :-)

Cheers,

David

--
David W. Fanning, Ph.D.
Fanning Software Consulting, Inc.
Phone: 970-221-0438, E-mail: david@dfanning.com
Coyote's Guide to IDL Programming: http://www.dfanning.com/
Toll-Free IDL Book Orders: 1-888-461-0155

Subject: Re: Simple animation?
Posted by JD Smith on Wed, 11 Sep 2002 16:26:58 GMT
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On Wed, 11 Sep 2002 07:47:49 -0700, Liam E. Gumley wrote:

> David Fanning wrote:
>> Liam E. Gumley (Liam.Gumley@ssec.wisc.edu) writes:
>>
>>> Shawn wrote:
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>> Draw your plots in the pixmap window, then use the DEVICE COPY
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> I initially started writing a reply that included this exact advice. But
> on rereading the original post, I thought a simpler solution might be
> required.
>

> However as David says, DEVICE COPY will give you true animation. Here's
> an example of Brownian motion animation from chapter 5 of my book:
>
>

Liam:

I was interested to see that you don't use true double buffering, but instead are just "erasing" the plot axes using the pixmap version of the dataless plot. For such a simple example, this gets the job done (in fact, just using

erase & plot, [0], /nodata, xrange=[-1, 1], yrange=[-1, 1]

would also do it about as well, except the axes would flicker a bit more). However, if you had a much more complicated plot, or a multiple command plot sequence, the plot drawing commands would themselves cause flicker and lag. This is especially noticeable if driven by motion events. In that case, it pays to use double buffering, i.e. draw *everything* to a pixmap, and, when finished, copy over to the visible window in one go. This produces by far the smoothest animation and motion for multi-element plots. It would go something like:

```
wset,pixwin
plot,...
countour,..,/noerase
oplot,.....
tv,...,/noerase
wset,viswin
device,copy=[0, 0, xsize, ysize, 0, 0, pixwin]
```

Obviously, if you can avoid redrawing certain things by offloading them to another pixmap and zapping that into the double-buffer pixmap, you can increase frame rates, but I find this simple technique excels for even very complicated plots.

JD

Subject: Re: Simple animation?
Posted by Pavel A. Romashkin on Wed, 11 Sep 2002 16:53:54 GMT
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How about a 2 s download and two lines of code:

```
IDL> display, findgen(100), name='this'
IDL> for i =1, 100 do display, sin(findgen(100)/(1000./i)), name='this', /over
```

http://www.ainaco.com/idl/idl_library/display.pro

Cheers,
Pavel

Shawn wrote:
>
> Hello,
> I recently tried to animate the change in my data with time. I
> found that if I plotted to the same window, it would over plot the old
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> redraw the data and to leave the axis alone?
> Thanks,
> Shawn

Subject: Re: Simple animation?
Posted by radbelt_res on Wed, 11 Sep 2002 20:11:51 GMT
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Thank you David and Liam!

I found both of your answers useful. I am going to keep David's answer in my back pocket until I decide to take the time to learn how to use pixmap windows. I used Liam's idea, modified of course, but it worked. I made the first plot, using "plot", then succesive plots were done using oplot in a 2 step fashion. First I overplotted the previous plot with the background color, then plotted the next array using the forground color. Not very elegant, but simple, and it was fast enough that I had to put wait statements in to slow the animation down.

Thanks again,
Shawn

David Fanning <david@dfanning.com> wrote in message
news:<MPG.17e860152c7ca76e9899a5@news.frii.com>...
> Liam E. Gumley (Liam.Gumley@ssec.wisc.edu) writes:
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>
> Cheers,
>
> David

Subject: Re: Simple animation?
Posted by R.Bauer on Wed, 11 Sep 2002 20:52:38 GMT
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David Fanning wrote:

> Reimar Bauer (R.Bauer@fz-juelich.de) writes:
>
>> This examples show in different to pixmap which is described by Liam the
>> usage of displaying a series of images stored in a 3-d Array.
>> Device copy and pixmap is the fastest way but there is a limitation of
>> 128 possible pixmap windows.
>
> Uh, I think Liam's example uses *one* pixmap window. :-)

Oh, I should read more carefully.

Reimar

--
Forschungszentrum Juelich
email: R.Bauer@fz-juelich.de
http://www.fz-juelich.de/icg/icg-i/
========== ======
a IDL library at ForschungsZentrum Juelich
http://www.fz-juelich.de/icg/icg-i/idl_icglib/idl_lib_intro. html