
Subject: FG image change

Posted by [Helder Marchetto](#) on Thu, 25 Jun 2015 10:46:20 GMT

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Hi,

as I mentioned in previous posts of mine, I would like to have a widget with a window to display images with image(). On top I would like to have markers.

I found two ways of doing this:

- 1) update the image using the setData method and two variables for x and y coordinates. This is ok, as long as you don't zoom or pan the image (discussed in a previous post).
- 2) delete all objects and recreate them. This does not have the pan/zoom problem, but is computationally more intensive.

Here are the results that I got by cycling 100 switching images:

Method 1) took 0.027 seconds

Method 2) the time increases linearly by 1.8 ms per cycle. It starts at 0.1 seconds and ends up at 0.3 after 100 iterations. This is adding also about 260 bytes of memory every round (26 kB after 100 iterations). Clearly evidence of some memory leakage somewhere...

Below I have attached the code to show this and my IDL version.

Is there a way in between these two methods that can get the job done?

Thanks,
Helder

```
function ww_mouse_motion_event, win, x, y, keymods
info = win.uvalue
MousePos = win->ConvertCoord(x, y, /device, /to_data)
widget_control, (*info).wBase, tlb_set_title=string(MousePos[0:1],format='("Pos=(",f0.2,"',
",f0.2,")")')
return, 1
end
```

```
pro testFunctionGraphicsObjects_event, event
;help, event
widget_control, event.top, get_uvalue=info
case event.id of
(*info).wButtonNext:begin
  (*info).counter = ~(*info).counter
  (*info).iObj->refresh, /disable
  if (*info).counter then begin
    xArr = (*info).d2[0]*dindgen((*info).s2[0])/((*info).s2[0]-1d)
    yArr = (*info).d2[1]*dindgen((*info).s2[1])/((*info).s2[1]-1d)
    (*info).iObj->setData, (*info).img2, xArr, yArr
```

```

    widget_control, (*info).wStatus, set_value=string([(info).s2[0],(*info).s2[1],(*info).d2[0],
(*info).d2[1]], format='(i4,"x",i4," pix, ",f0.2,"x",f0.2," mm")')
endif else begin
    xArr = (*info).d1[0]*dindgen((*info).s1[0])/((*info).s1[0]-1d)
    yArr = (*info).d1[1]*dindgen((*info).s1[1])/((*info).s1[1]-1d)
    (*info).iObj->setData, (*info).img1, xArr, yArr
    widget_control, (*info).wStatus, set_value=string([(info).s1[0],(*info).s1[1],(*info).d1[0],
(*info).d1[1]], format='(i4,"x",i4," pix, ",f0.2,"x",f0.2," mm")')
endelse
(*info).iObj->scale, /reset
(*info).iObj->rotate, /reset
(*info).iObj->translate, /reset
(*info).iObj->refresh
end
(*info).wButtonDeleteNext:begin
    (*info).counter = ~(*info).counter
    (*info).tdd->delete
    (*info).tnd->delete
    (*info).pdd->delete
    (*info).pnd->delete
    (*info).iObj->delete
    obj_destroy, (*info).tdd
    obj_destroy, (*info).tnd
    obj_destroy, (*info).pdd
    obj_destroy, (*info).pnd
    obj_destroy, (*info).iObj
    if (*info).counter then begin
        d = (*info).d2
        s = (*info).s2
        img = (*info).img2
        widget_control, (*info).wStatus, set_value=string([(info).s2[0],(*info).s2[1],(*info).d2[0],
(*info).d2[1]], format='(i4,"x",i4," pix, ",f0.2,"x",f0.2," mm")')
    endif else begin
        d = (*info).d1
        s = (*info).s1
        img = (*info).img1
        widget_control, (*info).wStatus, set_value=string([(info).s1[0],(*info).s1[1],(*info).d1[0],
(*info).d1[1]], format='(i4,"x",i4," pix, ",f0.2,"x",f0.2," mm")')
    endelse
    (*info).iObj = image(img, current=(*info).oWin, image_dimensions=d, margin=0)
    res = redrawObj((*info).iObj)
    (*info).tdd = res.tdd
    (*info).tnd = res.tnd
    (*info).pdd = res.pdd
    (*info).pnd = res.pnd
end
(*info).wButtonLoopNext:begin
    event.id = (*info).wButtonNext

```

```

times = dblarr(101)
help,/mem, output=out
startPos = strpos(out, ':')+1
endPos = strpos(out, ',')
startHeap = long(strmid(out, startPos, endPos-startPos))
t0 = systime(1)
for i = 0, 100I do begin
    testFunctionGraphicsObjects_event, event
    t1 = systime(1)
    times[i] = t1-t0
    t0 = t1
endfor
help,/mem, output=out
startPos = strpos(out, ':')+1
endPos = strpos(out, ',')
endHeap = long(strmid(out, startPos, endPos-startPos))
p = plot(times,'2r', xTitle='run Nr.', yTitle='time (sec)', title='Redraw, heap
used='+strtrim((endHeap-startHeap)/1024I,2)+' kB')
print, 'average = '+string(mean(times),format='(f0.3)')+ ' seconds'
end
(*info).wButtonLoopDeleteNext:begin
tic
event.id = (*info).wButtonDeleteNext
times = dblarr(101)
help,/mem, output=out
startPos = strpos(out, ':')+1
endPos = strpos(out, ',')
startHeap = long(strmid(out, startPos, endPos-startPos))
t0 = systime(1)
help,/mem
for i = 0, 100I do begin
    testFunctionGraphicsObjects_event, event
    t1 = systime(1)
    times[i] = t1-t0
    t0 = t1
endfor
help,/mem, output=out
startPos = strpos(out, ':')+1
endPos = strpos(out, ',')
endHeap = long(strmid(out, startPos, endPos-startPos))
p = plot(times,'2r', xTitle='run Nr.', yTitle='time (sec)', title='Delete and Draw, heap
used='+strtrim((endHeap-startHeap)/1024I,2)+' kB')
fitRes = linfit(dindgen(101), times)
ot = text(0.25,0.75, string(fitRes,format='("time = ",f0.3," + ",f0.9," runNr")'), 'b', /norm, target=p)
op = plot(fitres[0]+fitres[1]*dindgen(101),'2b', overplot=p)
end
(*info).wBase:begin
widget_control, (*info).wDraw, xSize=event.y, ySize=event.y

```

```

end
else:print, 'dunno what to do with id ', event.id
endcase
end

function redrawObj, iObj
tdd = text(3.0,0.3,'data defined', 'r', /data, target=iObj)
tnd = text(0.5,0.5,'norm defined', 'b', /norm, target=iObj)
pdd = polygon([3.0,4.0,4.0,3.0],[7.0,7.0,8.0,8.0],'r2', /data, target=iObj, /fill_background,
fill_color="red")
pnd = polygon([0.3,0.4,0.4,0.3],[0.3,0.3,0.4,0.4],'b2', /norm, target=iObj, /fill_background,
fill_color="light steel blue")
return, {tdd:tdd, tnd:tnd, pdd:pdd, pnd:pnd}
end

pro testFunctionGraphicsObjects_cleanup, event
print, 'cleanup'
widget_control, event, get_uvalue=info
ptr_free, info
end

pro testFunctionGraphicsObjects
;read the images
fNames = filepath(['mineral.png','endocell.jpg'], SUBDIRECTORY=['examples','data'])
img1 = read_png(fNames[0])
read_jpeg, fNames[1], img2
;get image sizes
s1 = size(img1, /dimensions)
s2 = size(img2, /dimensions)
;establish image dimensions (real space) as pixel sizes
pxs1 = 30d/s1[0] ;the x axis is defined as 30 um long
pxs2 = 1d/s2[0] ;the x axis is defined as 1 um long
d1 = s1*pxs1
d2 = s2*pxs2
;create starting widgets
wBase = widget_base(/row, title='Pos=( 0, 0)', /tlb_size_events)
wDraw = widget_window(wBase, xsize=600, ysize=600,
mouse_motion_handler='ww_mouse_motion_event')
wButtonCol = widget_base(wBase, /col)
wButtonNext = widget_button(wButtonCol, /dynamic_resize, value='next Image')
wButtonDeleteNext = widget_button(wButtonCol, /dynamic_resize, value='delete and next Image')
wButtonLoopNext = widget_button(wButtonCol, /dynamic_resize, value='loop next Image')
wButtonLoopDeleteNext = widget_button(wButtonCol, /dynamic_resize, value='loop delete and
next Image')
wStatus = widget_label(wButtonCol, /dynamic_resize, value=string([s1[0],s1[1],d1[0],d1[1]],
format='(i4,"x",i4," pix, ",f0.2,"x",f0.2," mm)'))
widget_control, wBase, /realize
; Retrieve the newly-created Window object.

```

```

widget_control, wDraw, get_value=oWin
iObj = image(img1, current=oWin, image_dimensions=d1, margin=0)
res = redrawObj(iObj)

info = ptr_new({wBase:wBase,$
    wDraw:wDraw,$
    wButtonNext:wButtonNext,$
    wButtonDeleteNext:wButtonDeleteNext,$
    wButtonLoopNext:wButtonLoopNext,$
    wButtonLoopDeleteNext:wButtonLoopDeleteNext,$
    wStatus:wStatus,$
    d1:d1,$
    d2:d2,$
    s1:s1,$
    s2:s2,$
    counter:0b,$
    img1:img1,$
    img2:img2,$
    oWin:oWin,$
    iObj:iObj,$
    tdd:res.tdd,$
    tnd:res.tnd,$
    pdd:res.pdd,$
    pnd:res.pnd})
oWin.uvalue=info
widget_control, wBase, set_uvalue=info
xmanager, 'testFunctionGraphicsObjects', wBase, cleanup =
'testFunctionGraphicsObjects_Cleanup', event_handler = 'testFunctionGraphicsObjects_event',
/no_block
end

IDL> !version
{
    "ARCH": "x86_64",
    "OS": "Win32",
    "OS_FAMILY": "Windows",
    "OS_NAME": "Microsoft Windows",
    "RELEASE": "8.4.1",
    "BUILD_DATE": "Feb 17 2015",
    "MEMORY_BITS": 64,
    "FILE_OFFSET_BITS": 64
}

```

Subject: Re: FG image change
 Posted by [Helder Marchetto](#) on Fri, 26 Jun 2015 13:07:14 GMT
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Hi,

I'm going to answer my own post. After contacting Exelis/Harris support (thanks!), I got great feedback and as it usually goes, things can be pretty easy.

The trick is to set the image scale_factor property to 1 and the image scale_center property to half the image dimensions after using the setData method.

Below is the updated script.

In the script I gave before, there was another error. When defining the x and y axis ranges in the setMethod I divide by nPoints-1. This is wrong and should have been simply nPoints.

The script is below.

Cheers,
Helder

```
function ww_mouse_motion_event, win, x, y, keymods
info = win.uvalue
MousePos = win->ConvertCoord(x, y, /device, /to_data)
widget_control, (*info).wBase, tlb_set_title=string(MousePos[0:1],format='("Pos=(",f0.2,"',
",f0.2,")")')
return, 1
end

pro testFunctionGraphicsObjects_event, event
;help, event
widget_control, event.top, get_uvalue=info
case event.id of
(*info).wButtonNext:begin
  (*info).counter = ~(*info).counter
  (*info).iObj->refresh, /disable
  if (*info).counter then begin
    xArr = (*info).d2[0]*dindgen((*info).s2[0])/(*info).s2[0]
    yArr = (*info).d2[1]*dindgen((*info).s2[1])/(*info).s2[1]
    (*info).iObj->setData, (*info).img2, xArr, yArr
    (*info).iObj.scale_factor=1d
    (*info).iObj.scale_center=(*info).d2/2d
    widget_control, (*info).wStatus, set_value=string([(*info).s2[0],(*info).s2[1],(*info).d2[0],
    (*info).d2[1]], format='(i4,"x",i4," pix, ",f0.2,"x",f0.2," mm")')
  endif else begin
    xArr = (*info).d1[0]*dindgen((*info).s1[0])/(*info).s1[0]
    yArr = (*info).d1[1]*dindgen((*info).s1[1])/(*info).s1[1]
    (*info).iObj->setData, (*info).img1, xArr, yArr
    (*info).iObj.scale_factor=1d
    (*info).iObj.scale_center=(*info).d1/2d
    widget_control, (*info).wStatus, set_value=string([(*info).s1[0],(*info).s1[1],(*info).d1[0],
    (*info).d1[1]], format='(i4,"x",i4," pix, ",f0.2,"x",f0.2," mm")')
  endelse
  (*info).iObj->refresh
```

```

end
(*info).wButtonDeleteNext:begin
  (*info).counter = ~(*info).counter
  (*info).tdd->delete
  (*info).tnd->delete
  (*info).pdd->delete
  (*info).pnd->delete
  (*info).iObj->delete
  obj_destroy, (*info).tdd
  obj_destroy, (*info).tnd
  obj_destroy, (*info).pdd
  obj_destroy, (*info).pnd
  obj_destroy, (*info).iObj
  if (*info).counter then begin
    d = (*info).d2
    s = (*info).s2
    img = (*info).img2
    widget_control, (*info).wStatus, set_value=string([( *info).s2[0],(*info).s2[1],(*info).d2[0],
(*info).d2[1]], format='(i4,"x",i4," pix, ",f0.2,"x",f0.2," mm")')
  endif else begin
    d = (*info).d1
    s = (*info).s1
    img = (*info).img1
    widget_control, (*info).wStatus, set_value=string([( *info).s1[0],(*info).s1[1],(*info).d1[0],
(*info).d1[1]], format='(i4,"x",i4," pix, ",f0.2,"x",f0.2," mm")')
  endelse
  (*info).iObj = image(img, current=(*info).oWin, image_dimensions=d, margin=0)
  res = redrawObj((*info).iObj)
  (*info).tdd = res.tdd
  (*info).tnd = res.tnd
  (*info).pdd = res.pdd
  (*info).pnd = res.pnd
end
(*info).wButtonLoopNext:begin
  event.id = (*info).wButtonNext
  times = dblarr(101)
  help,/mem, output=out
  startPos = strpos(out, ':')+1
  endPos = strpos(out, ',')
  startHeap = long(strmid(out, startPos, endPos-startPos))
  t0 = systime(1)
  for i = 0, 100l do begin
    testFunctionGraphicsObjects_event, event
    t1 = systime(1)
    times[i] = t1-t0
    t0 = t1
  endfor
  help,/mem, output=out

```

```

    startPos = strpos(out, ':')+1
    endPos = strpos(out, ',')
    endHeap = long(strmid(out, startPos, endPos-startPos))
    p = plot(times,'2r', xTitle='run Nr.', yTitle='time (sec)', title='Redraw, heap
used='+string(trim((endHeap-startHeap)/1024,2)+' kB')
    print, 'average = '+string(mean(times),format='(f0.3)')+ ' seconds'
end
(*info).wButtonLoopDeleteNext:begin
    tic
    event.id = (*info).wButtonDeleteNext
    times = dblarr(101)
    help,/mem, output=out
    startPos = strpos(out, ':')+1
    endPos = strpos(out, ',')
    startHeap = long(strmid(out, startPos, endPos-startPos))
    t0 = systime(1)
    help,/mem
    for i = 0, 100 do begin
        testFunctionGraphicsObjects_event, event
        t1 = systime(1)
        times[i] = t1-t0
        t0 = t1
    endfor
    help,/mem, output=out
    startPos = strpos(out, ':')+1
    endPos = strpos(out, ',')
    endHeap = long(strmid(out, startPos, endPos-startPos))
    p = plot(times,'2r', xTitle='run Nr.', yTitle='time (sec)', title='Delete and Draw, heap
used='+string(trim((endHeap-startHeap)/1024,2)+' kB')
    fitRes = linfit(dindgen(101), times)
    ot = text(0.25,0.75, string(fitRes,format='("time = ",f0.3," + ",f0.9," runNr)'), 'b', /norm, target=p)
    op = plot(fitres[0]+fitres[1]*dindgen(101),'2b', overplot=p)
end
(*info).wBase:begin
    widget_control, (*info).wDraw, xSize=event.x, ySize=event.y
end
else:print, 'dunno what to do with id ', event.id
endcase
end

function redrawObj, iObj
tdd = text(3.0,0.3,'data defined', 'r', /data, target=iObj)
tnd = text(0.5,0.5,'norm defined', 'b', /norm, target=iObj)
pdd = polygon([3.0,4.0,4.0,3.0],[7.0,7.0,8.0,8.0], 'r2', /data, target=iObj, /fill_background,
fill_color="red")
pnd = polygon([0.3,0.4,0.4,0.3],[0.3,0.3,0.4,0.4], 'b2', /norm, target=iObj, /fill_background,
fill_color="light steel blue")
return, {tdd:tdd, tnd:tnd, pdd:pdd, pnd:pnd}

```

end

```
pro testFunctionGraphicsObjects_cleanup, event
print, 'cleanup'
widget_control, event, get_uvalue=info
ptr_free, info
end
```

```
pro testFunctionGraphicsObjects
;read the images
fNames = filepath(['mineral.png','endocell.jpg'], SUBDIRECTORY=['examples','data'])
img1 = read_png(fNames[0])
read_jpeg, fNames[1], img2
;get image sizes
s1 = size(img1, /dimensions)
s2 = size(img2, /dimensions)
;establish image dimensions (real space) as pixel sizes
pxs1 = 30d/s1[0] ;the x axis is defined as 30 um long
pxs2 = 1d/s2[0] ;the x axis is defined as 1 um long
d1 = s1*pxs1
d2 = s2*pxs2
;create starting widgets
wBase = widget_base(/row, title='Pos=( 0, 0)', /tlb_size_events)
wDraw = widget_window(wBase, xsize=600, ysize=600,
mouse_motion_handler='ww_mouse_motion_event')
wButtonCol = widget_base(wBase, /col)
wButtonNext = widget_button(wButtonCol, /dynamic_resize, value='next Image')
wButtonDeleteNext = widget_button(wButtonCol, /dynamic_resize, value='delete and next Image')
wButtonLoopNext = widget_button(wButtonCol, /dynamic_resize, value='loop next Image')
wButtonLoopDeleteNext = widget_button(wButtonCol, /dynamic_resize, value='loop delete and
next Image')
wStatus = widget_label(wButtonCol, /dynamic_resize, value=string([s1[0],s1[1],d1[0],d1[1]],
format='(i4,"x",i4," pix, ",f0.2,"x",f0.2," mm)'))
widget_control, wBase, /realize
; Retrieve the newly-created Window object.
widget_control, wDraw, get_value=oWin
iObj = image(img1, current=oWin, image_dimensions=d1, margin=0)
res = redrawObj(iObj)

info = ptr_new({wBase:wBase,$
wDraw:wDraw,$
wButtonNext:wButtonNext,$
wButtonDeleteNext:wButtonDeleteNext,$
wButtonLoopNext:wButtonLoopNext,$
wButtonLoopDeleteNext:wButtonLoopDeleteNext,$
wStatus:wStatus,$
d1:d1,$
d2:d2,$
```

```
s1:s1,$
s2:s2,$
counter:0b,$
img1:img1,$
img2:img2,$
oWin:oWin,$
iObj:iObj,$
tdd:res.tdd,$
tnd:res.tnd,$
pdd:res.pdd,$
pnd:res.pnd}))
oWin.uvalue=info
widget_control, wBase, set_uvalue=info
xmanager, 'testFunctionGraphicsObjects', wBase, cleanup =
'testFunctionGraphicsObjects_Cleanup', event_handler = 'testFunctionGraphicsObjects_event',
/no_block
end
```
