
Subject: Double-precision plotting doesn't work in object graphics

Posted by [Mark Hadfield](#) on Fri, 01 Feb 2002 04:22:31 GMT

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In IDL version 5.4 RSI introduced double precision support in its graphics routines and objects to allow (amongst other things) plotting of times expressed in Julian Days. I have just noticed that it doesn't work as advertised in Object Graphics.

The routine below demonstrates this. It generates & plots two day's worth of data at 15-minute intervals. Option 0 gives you a Direct Graphics plot: it shows a nice clean ramp. Option 1 gives an Object graphics plot: it shows steps at ~0.3 days spacing.

Here is a calculation of the granularity expected in single- and double-precision representations of Julian dates:

```
IDL> m = machar() & feps = m.eps
IDL> m = machar(/DOUBLE) & deps = m.eps
IDL> print, 2452301*feps, 2452301*deps
0.292337 5.4452021e-010
```

The step spacing in the Object Graphics plot is suspiciously similar to the single-precision granularity. Obviously some single-precision numbers are creeping into the Object Graphics calculations.

Version tested: { x86 Win32 Windows Microsoft Windows 5.5 Aug 28 2001 32 64}

Oh well, it looks like I'll have to translate the data and fudge the labels a little longer.

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***** mgh_test_double_plot.pro *****

```
pro mgh_test_double_plot, option
```

```
    compile_opt IDL2
```

```
    if n_elements(option) eq 0 then option = 0
```

```
;; Create two days data at 15-minute intervals
;; Origin is 27 Jan 2002
```

```
time = 2452301.5D0 + dindgen(193)/96
```

```
data = dindgen(193)/96
```

```
case option of
```

```
0: begin
```

```
;; Direct Graphics
```

```
plot, time, data, XTICKUNITS='days', XTICKFORMAT='(C(CDI2,X,CMoA))'
```

```
end
```

```
1: begin
```

```
;; Object Graphics
```

```
model = obj_new('IDLgrModel')
```

```
;; NORM_COORD function is in
```

```
;; <IDL_DIR>/examples/visual/utility/norm_coord.pro
```

```
xcoord = norm_coord([min(time),max(time)])
```

```
ycoord = norm_coord([min(data),max(data)])
```

```
xaxis = obj_new('IDLgrAxis', 0, RANGE=[min(time),max(time)], $  
    TICKUNITS='days', TICKFORMAT='(C(CDI2,X,CMoA))', $  
    TICKLEN=0.05, $  
    LOCATION=[-0.2,-0.2], XCOORD_CONV=xcoord)
```

```
model->Add, xaxis
```

```
yaxis = obj_new('IDLgrAxis', 1, RANGE=[min(data),max(data)], $  
    TICKLEN=0.05, $  
    LOCATION=[-0.2,-0.2], YCOORD_CONV=ycoord)
```

```
model->Add, yaxis
```

```
dplot = obj_new('IDLgrPlot', time, data, $  
    XCOORD_CONV=xcoord, YCOORD_CONV=ycoord)
```

```
model->Add, dplot
```

```
xobjview, model
```

```
end
```

```
endcase
```

```
end
```
