Subject: Bug in IDL's TIMEGEN function
Posted by Dave Wuertz on Fri, 24 Aug 2007 20:11:34 GMT
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Folks,

I found a bug in IDL's TIMEGEN function. It really nailed me good, as I was using the (erroneous) results from TIMEGEN to compute direct-access locations within database files.

First off, I'm running IDL v6.4 on a 32-bit Linux-Intel box.

TIMEGEN returns an incorrect sequence of julian dates when STEP_SIZE=-1, and UNITS="Months" when crossing year boundaries as demonstrated in the simple example below. Note the results *should* be monotonically decreasing.

```
IDL> MyTimes = TIMEGEN( units="Months", step_size=-1,
start=julday(1,15,2007), final=julday(10,15,2006))
IDL> print, MyTimes - MyTimes(0)
      0.0000000      -396.00000      -61.000000      -92.000000
```

This way gives the same erroneous result:

```
MyTimes = TIMEGEN(4, units="Months", step_size=-1, start=julday(1,15,2007))
```

However, if you go forward in time (i.e., with a positive step_size), the function crosses the year boundary correctly:

```
IDL> MyTimes = TIMEGEN(units="Months", step_size=1,
final=julday(1,15,2007), start=julday(10,15,2006))
IDL> print, MyTimes - MyTimes(0)
      0.0000000       31.000000       61.000000       92.000000
```

In the last example I swapped the dates for "start" and "final" and made the step_size positive.

The dangerous thing is that the function returns a valid date, usually withing a year or two of the correct date, so some programs (like mine) can hum along just fine all the while subtly screwing things up!

I have filled out an "Incident" report at ittvis.com, but have not gotten a response yet.

-Dave Wuertz