Subject: Re: two issues with julian dates
Posted by David Fanning on Wed, 11 Jul 2007 21:58:20 GMT
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Josh writes:

> I've got date and time strings that I've parsed into their respective
> hour/minute/etc and month/day/etc form and I'm using the julday()
> function to turn them into julian dates. I've come across two
> problems that hopefully somebody can help me with.
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> First off, according to NASA (http://ssd.jpl.nasa.gov/tc.cgi#top), the
> returned value of julday() is incorrect. When I use 11/18/2003 at
> 16:14:43, I get 2452955.2 from IDL and 2452962.1768866 from NASA.
> Thoughts?
>
> Second, the fact that julday() only returns a value with ONE digit
> after the decimal is not cool. If it returns a double floating point
> value, shouldn't I be able to get 14 sig figs? The time scales in my
> data set are such that I need that resolution. Thoughts?

Humm. Are you using *this* IDL!

```
IDL> print, julday(11, 18, 2003, 16, 14, 43), format='(F 20.10)
  2452962.1768865748
```

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.dfanning.com/
Sepore ma de ni thui. ("Perhaps thou speakest truth.")

Subject: Re: two issues with julian dates
Posted by Josh on Wed, 11 Jul 2007 22:25:03 GMT
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On Jul 11, 3:58 pm, David Fanning <n...@dfanning.com> wrote:
> Josh writes:
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>> hour/minute/etc and month/day/etc form and I'm using the julday()
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Perhaps it is because it is getting late into the afternoon, but I
can't use that technique to stuff the new Julian date into a variable,
correct? If I want to just save that beautifully long number in an
array, how can I keep it formatted like that?

Subject: Re: two issues with julian dates
Posted by news.qwest.net on Wed, 11 Jul 2007 22:36:34 GMT
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"Josh" <joshuamontague@gmail.com> wrote in message
news:1184192703.958890.225080@d30g2000prg.googlegroups.com.. .
> On Jul 11, 3:58 pm, David Fanning <n...@dfanning.com> wrote:
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> correct? If I want to just save that beautifully long number in an
> array, how can I keep it formatted like that?

Yes you can put that into a (double) variable.
It is "formatted" like that. Do not confuse the format of the print statement,
with the precision of a double variable.

Cheers,
bob

Subject: Re: two issues with julian dates
Posted by David Fanning on Wed, 11 Jul 2007 22:37:06 GMT
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Josh writes:

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> can't use that technique to stuff the new Julian date into a variable,
> correct? If I want to just save that beautifully long number in an
> array, how can I keep it formatted like that?

Well, it *is* formatted like that, since it is a double precision
value. I think you are confusing the actual number to what
sometimes happens when you print a value. This article will
be of value to you:

  http://www.dfanning.com/math_tips/sky_is_falling.html

Cheers,

David
--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
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Subject: Re: two issues with julian dates
Posted by Jean H. on Wed, 11 Jul 2007 22:43:56 GMT
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Josh wrote:
> On Jul 11, 3:58 pm, David Fanning <n...@dfanning.com> wrote:
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> correct? If I want to just save that beautifully long number in an
> array, how can I keep it formatted like that?
>

it is saved properly.... it is rounded when you display it only!
to convince yourself:
a = julday(11, 18, 2003, 16, 14, 43)
>> 2452962.1768865748
print, a - 2452962.0

Jean

Subject: Re: two issues with julian dates
Posted by Josh on Thu, 12 Jul 2007 18:02:34 GMT
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On Jul 11, 4:37 pm, David Fanning <n...@dfanning.com> wrote:
> This article will be of value to you:
>

> http://www.dfanning.com/math_tips/sky_is_falling.html
>

First of all, thank you educating me about this. I read a number of your articles on the precision of numbers, and I've finally got the double precision values I was seeking. However, when I try to put them on an x-axis, they appear to revert back to single precision values. The array of values are definitely double precision, and I set xtickformat='(F20.5)', but sadly the labels appear to be (single) floats disguised in the F20.5 format, and the data being plotted is clumped into groups instead of nice and continuous (perhaps because it sees big gaps in the x values due to their single precision?). I am hoping this is a minor step I've missed in the keywords to PLOT.

Subject: Re: two issues with julian dates
Posted by David Fanning on Thu, 12 Jul 2007 19:32:39 GMT
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Josh writes:

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> your articles on the precision of numbers, and I've finally got the
> double precision values I was seeking. However, when I try to put
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> clumped into groups instead of nice and continuous (perhaps because it
> sees big gaps in the x values due to their single precision?). I am
> hoping this is a minor step I've missed in the keywords to PLOT.

Are your sure your X values are double precision? (And not double precision, which were converted from floats, as the article you read warned you about.)

Can I see how you create these values?

As far as I know, IDL stores axes values in double precision always since about IDL 5.4.

Cheers,

David

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

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Subject: Re: two issues with julian dates
Posted by David Fanning on Thu, 12 Jul 2007 19:51:41 GMT
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Josh writes:

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> your articles on the precision of numbers, and I've finally got the
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> clumped into groups instead of nice and continuous (perhaps because it
> sees big gaps in the x values due to their single precision?). I am
> hoping this is a minor step I've missed in the keywords to PLOT.

The more I think about this, the more likely it seems to me
that the problem comes from converting doubles to strings.
Have you read this article?

http://www.dfanning.com/misc_tips/dbl_to_str.html

You might well have to write your own tick formatting function
to make this work the way you want it to work. It's just hard
to tell without seeing what you are doing.

Cheers,

David

--
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Fanning Software Consulting, Inc.
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Subject: Re: two issues with julian dates
Posted by Josh on Thu, 12 Jul 2007 20:25:30 GMT
View Forum Message <> Reply to Message

On Jul 12, 1:51 pm, David Fanning <n...@dfanning.com> wrote:

> Josh writes:
>> First of all, thank you educating me about this. I read a number of
>> your articles on the precision of numbers, and I've finally got the
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As far as I know, the only conversion I've done is actually to convert
strings to doubles. The input file is read as a big long string, then
the pieces are broken out and some (these) are converted to doubles.
I've sent you an email with some of my code. Perhaps it will help.

Subject: Re: two issues with julian dates
Posted by Josh on Mon, 16 Jul 2007 22:11:06 GMT
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On Jul 12, 1:51 pm, David Fanning <n...@dfanning.com> wrote:
> Josh writes:
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Having given up Julian dates, in lieu of a simpler route, I am now simply taking the date/time and storing it as a double with respect to the year (e.g. 3/21/2004 @ 12:17:44.767 = 2004.2903452730). All the variables used to create the value were born doubles, and stayed doubles all along.

Alas, the same problem persists. I can see the following:
IDL> print, ROItimeArr[85], format='(F20.10)'
2004.2903452730

But on the plot, I get 2004.2903 which is the above, sans the 'format' at the end. So, everything within +-0.0001 (which happens to be about 20% of the data set) gets put on that x value.

I also tried subtracting 2004 from all the data, thinking that might help, but I simply get the same x values without the 2004 (e.g. 0.2903).

Just thought I'd post a minor update. If anyone else has ever had/

solved this problem, I'd appreciate any advice