
Subject: Re: Problem with plot: "Program caused arithmetic error: Floating underflow"

Posted by [Mark Hadfield](#) on Tue, 12 Oct 2004 20:41:44 GMT

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sandrokan wrote:

```
> Hello:
> I've got this problem with this array x, saved in
> ftp://ftp.artov.rm.cnr.it/incoming/IFSI/
> help, x
>
> X UINT = Array[421412]
>
> IDL> plot, x
>
> IDL> plot, x, x
>
> % Program caused arithmetic error: Floating underflow
```

I don't get this error and don't see why you would get it. The contents of X look pretty unremarkable to me.

Perhaps you have some sort of scaling in effect on the X axis. Have you tried again in a new IDL session?

--

Mark Hadfield "Ka puwaha te tai nei, Hoea tatou"
m.hadfield@niwa.co.nz
National Institute for Water and Atmospheric Research (NIWA)

Subject: Re: Problem with plot: "Program caused arithmetic error: Floating underflow"

Posted by [sandrokan](#) on Wed, 13 Oct 2004 07:26:35 GMT

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```
> I don't get this error and don't see why you would get it. The contents
> of X look pretty unremarkable to me.
>
> Perhaps you have some sort of scaling in effect on the X axis. Have you
> tried again in a new IDL session?
>
```

Yes: I've downloaded from ftp://ftp.artov.rm.cnr.it/incoming/IFSI/ and then
IDL> restore, 'test.idl'

IDL> plot, x, x

% Program caused arithmetic error: Floating underflow

There are non NaNs or Infs, it seems...

I'm working on a P4 (XP)

Ale

Subject: Re: Problem with plot: "Program caused arithmetic error: Floating underflow"

Posted by [David Fanning](#) on Wed, 13 Oct 2004 08:04:01 GMT

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sandrokan writes:

```
> Yes: I've downloaded from ftp://ftp.artov.rm.cnr.it/incoming/IFSI/ and then
> IDL> restore, 'test.idl'
>
> IDL> plot, x, x
>
> % Program caused arithmetic error: Floating underflow
>
>
>
> There are non NaNs or Infs, it seems...
>
>
>
> I'm working on a P4 (XP)
```

Byte order problem? Have a look at BYTEORDER or the SWAP...
keywords on the OPEN commands.

Cheers,

David

--

David W. Fanning, Ph.D.

Fanning Software Consulting, Inc.

Coyote's Guide to IDL Programming: <http://www.dfanning.com/>

Phone: 970-221-0438, IDL Book Orders: 1-888-461-0155

Subject: Re: Problem with plot: "Program caused arithmetic error: Floating underflow"

Posted by [sandrokan](#) on Wed, 13 Oct 2004 08:49:04 GMT

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BTW, it's IDL5.2.

Ale

Subject: Re: Problem with plot: "Program caused arithmetic error: Floating underflow"

Posted by [David Fanning](#) on Thu, 14 Oct 2004 20:30:34 GMT

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Paul Van Delst writes:

> In the interests of pedantry, 5.2 was released near the end of 1998. Not quite 10 years,
> but a goodly time ago. I started using IDL around 10 or so years ago and I think v3.6 was
> the version of choice back then.

But isn't one year of human time seven years of software time?

Or, have I got that wrong. :-)

Cheers,

David

--

David W. Fanning, Ph.D.

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Subject: Re: Problem with plot: "Program caused arithmetic error: Floating underflow"

Posted by [Mark Hadfield](#) on Thu, 14 Oct 2004 21:49:54 GMT

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Paul Van Delst wrote:

> In the interests of pedantry, 5.2 was released near the end of 1998. Not
> quite 10 years, but a goodly time ago. I started using IDL around 10 or
> so years ago and I think v3.6 was the version of choice back then.

Uh oh, it looks like another "I started using IDL 3 centuries ago at version -10 on an abacus" thread is in danger of breaking out. Oh well, might as well accept the inevitable...

I started in late 1992/early 1993 and I *think* it was version 3.1 or maybe 3.5. (I don't think the intervening version numbers existed). For 16-bit Windows, outlandish though that may seem. It was compiled with the Watcom compiler, which supported 32-bit flat memory via a DOS extender, or some such nonsense. I recall that my PC had 256 MiB of RAM ... no, that can't be right, 256 MiB of *disk space* and 16 MiB of RAM.

--

Mark Hadfield "Ka puwaha te tai nei, Hoesa tatou"
m.hadfield@niwa.co.nz
National Institute for Water and Atmospheric Research (NIWA)

Subject: Re: Problem with plot: "Program caused arithmetic error: Floating underflow"

Posted by [Mark Hadfield](#) on Thu, 14 Oct 2004 21:52:21 GMT

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sandrokan wrote:

> "Mark Hadfield" <m.hadfield@niwa.co.nz> ha scritto nel messaggio
> news:ckk4el\$mte\$1@newsreader.mailgate.org...
>
>
>> Does this error actually matter to you? I.e. does your program misbehave
>> in any other way? Floating underflows are often benign.
>
>
> I need to release my code to some users, I think that they could worry if
> they see
> such a message. Also, IDL refuses to plot them (sometimes, not always) if
> I use psym=8 with _some_ usersym definition.....
>
> In the end, I think it is another bug of IDL.

OK, but surely you can work around it. How about converting your UINT data to FLOAT before plotting it?

--

Mark Hadfield "Ka puwaha te tai nei, Hoesa tatou"
m.hadfield@niwa.co.nz
National Institute for Water and Atmospheric Research (NIWA)

Subject: Re: Problem with plot: "Program caused arithmetic error: Floating underflow"

Posted by [Paul Van Delst\[1\]](#) on Fri, 15 Oct 2004 14:06:37 GMT

David Fanning wrote:

> Paul Van Delst writes:

>

>

>> In the interests of pedantry, 5.2 was released near the end of 1998. Not quite 10 years,
>> but a goodly time ago. I started using IDL around 10 or so years ago and I think v3.6 was
>> the version of choice back then.

>

>

> But isn't one year of human time seven years of software time?

I was going to brig that up, but I figured that would be pushing it too far...

> Or, have I got that wrong. :-)

No - I think that is pretty accurate. The software I wrote a year ago is a real dog. Looks
and runs like one. :o(

<groan attribute="eyeroll">

paulv

Subject: Re: Problem with plot: "Program caused arithmetic error: Floating underflow"

Posted by [Nigel Wade](#) on Fri, 15 Oct 2004 16:35:48 GMT

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Mark Hadfield wrote:

> sandrokan wrote:

>>

>> IDL> z=[uintarr(1789),115+uintarr(46762-1789),uintarr(300)]

>> IDL> plot, z

>> IDL> plot, z, z

>> % Program caused arithmetic error: Floating underflow

>

> Nope, I don't see it (IDL 6.0 & 6.1 on Windows 2000). Do you get
> anything like this when you represent the same numeric values with other
> data types?

>

> Perhaps its a bug in IDL's handling of UINT values. I note that you are
> using 5.2. Unsigned integers were introduced in that version; perhaps
> they hadn't ironed out all the wrinkles.

>

> Does this error actually matter to you? Ie. does your program misbehave

> in any other way? Floating underflows are often benign.
>

I've just performed a history check.

IDL | underflow "feature"

5.1.1 | yes (no UINT, but does appear for FLTARR)

5.2 | yes

5.3 | yes

5.4 | dunno, don't have 5.4

5.5 | no

5.6 | no

So, the "feature" seems to have been removed sometime after 5.3

It's the same with FLTARR and DBLARR, which sort of indicates it's not UINT at fault, and the fact that it appears in 5.1.1 (the earliest version I have) when there was no UINT makes it pretty certain.

--

Nigel Wade, System Administrator, Space Plasma Physics Group,
University of Leicester, Leicester, LE1 7RH, UK

E-mail : nmw@ion.le.ac.uk

Phone : +44 (0)116 2523548, Fax : +44 (0)116 2523555

Subject: Re: Problem with plot: "Program caused arithmetic error: Floating underflow"

Posted by [sandrokan](#) on Mon, 18 Oct 2004 07:43:49 GMT

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> OK, but surely you can work around it. How about converting your UINT

> data to FLOAT before plotting it?

>

I doesn't work. I think the problem is the big amount of points with the same abscissa.

IDL Version 5.2 (Win32 x86). Research Systems, Inc.

For basic information, enter "IDLInfo" at the IDL> prompt.

```
IDL> z=[uintarr(1789),115+uintarr(46762-1789),uintarr(300)]
```

```
IDL> plot, z, z
```

```
% Program caused arithmetic error: Floating underflow
```

```
IDL> plot, float(z), float(z)
```

% Program caused arithmetic error: Floating underflow

The IDL helpdesk has sent me an hint. In practice, you can disable warnings and re-enable them just after that call.

< slightly OT>

BTW, about IDL5.2 upgrading: Of course, I think it is a good idea to upgrade a program when new releases are available, but: (1) these are not free; (2) I feel comfortable with my 5.2, why changing? Is progress function of my needs, or the inverse? I have everything I need with 5.2; if, working on a subsequent version, I release my codes to other scientists, there's the risk that all my colleagues are forced to upgrade their version too...

<more OT>

Why s/w should be changed so oftenly, if there's nothing that wears down? My Lancia Fulvia Coupe is 35 years old, still works...well, sometimes I push her in her back, it is a "patch" ..:-)

</OT>

Alessandro

Subject: Re: Problem with plot: "Program caused arithmetic error: Floating underflow"

Posted by [David Fanning](#) on Mon, 18 Oct 2004 09:01:55 GMT

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sandrokan writes:

> BTW, about IDL5.2 upgrading: Of course, I think it is a good idea to upgrade
> a program when new
> releases are available, but: (1) these are not free; (2) I feel comfortable
> with my 5.2, why changing?

No reason at all. But you can't be comfortable and complain about things, too. Das ist verboten. :-)

Cheers,

David

P.S. Well, unless you have written software without bugs in it. None of the rest of us qualify, that's for sure. :-(

--

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Subject: Re: Problem with plot: "Program caused arithmetic error: Floating underflow"

Posted by [sandrokan](#) on Mon, 18 Oct 2004 11:51:12 GMT

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"David Fanning" <david@dfanning.com> ha scritto nel messaggio
news:MPG.1bdd346a76670cae98969f@news.frii.com...

> sandrokan writes:

>

> No reason at all. But you can't be comfortable and complain
> about things, too. Das ist verboten. :-)

Yes, even if I was only looking for some help, it sounded a little bit like a complaint, excusez-moi :-)

> P.S. Well, unless you have written software without bugs
> in it. None of the rest of us qualify, that's for sure. :-(
>

Well...no, I have no code of mine w/out bugs, that's for sure, but people frequently ask me to patch them (regardless to the fact that they are for free) and I do.

PS. Are you still in Germany? Italy is close...*

Regards

Ale

Alessandro Mura, PhD.
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Istituto di Fisica dello Spazio Interplanetario
Via del Fosso del Cavaliere 100
Roma
06 49934386

*sponsored by the Italian Minister of Tourism

Subject: Re: Problem with plot: "Program caused arithmetic error: Floating underflow"

Posted by [David Fanning](#) on Mon, 18 Oct 2004 13:17:24 GMT

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Ale writes:

> PS. Are you still in Germany? Italy is close...*

Well, I am in Germany for another month, but my schedule is getting fuller even as we speak. Still, Italy.... I could probably free up some time. :-)

Cheers,

David

P.S. Let's just say my experiences in Germany vis-a-vis the Italians has left a little to be desired. I would *love* to be convinced it was the beautiful country, full of amore, I've always imagined it was. No beer there, I take it. Wine?

--

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