
Subject: Re: IDL 6.1 EPS error

Posted by [Michael Wallace](#) on Wed, 27 Oct 2004 17:26:24 GMT

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> I haven't yet confirmed what is causing the problem, but it may be
> related to the text I'm using. I have been able to successfully create
> EPS files of axes and plot data, but without text. As soon as text gets
> added, it seems that the arithmetic errors start showing up the the EPS
> files become corrupt.

Well, I just created an EPS with text and it's fine. There must be something really specific I'm doing wrong. I would post my code, but right now it's spread over many files and functions.

Subject: Re: IDL 6.1 EPS error

Posted by [Mark Hadfield](#) on Wed, 27 Oct 2004 20:50:57 GMT

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Michael Wallace wrote:

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> right now it's spread over many files and functions.

IDL 6.1 has some significant bugs in its EPS output. (I don't think the behaviour you have described resembles any of the bugs I am aware of, but still...) I understand these are to be fixed in 6.1.1, which was announced by email on 2 October as a fix for problem in "reading non-finite data in IDL 6.1", but will also fix a few other problems. It is to be released in "a few weeks".

You should report this behaviour to RSI tech support, who may well pass it on to Karl Schultz, the resident expert. Or perhaps he will reply on the newsgroup.

BTW, I notice that RSI have advertised to fill a couple of positions in quality control & testing. Interesting...

--

Mark Hadfield "Ka puwaha te tai nei, Hoesa tatou"
m.hadfield@niwa.co.nz

Subject: Re: IDL 6.1 EPS error

Posted by [Michael Wallace](#) on Wed, 27 Oct 2004 22:29:14 GMT

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I've found the specific culprit of my problem. I should have thought to look at the actual EPS code created, but it didn't dawn on me until now.

The EPS code is writing nan's to the actual EPS file. This only happens for my text objects and always follows the same pattern.

```
/Courier findfont 13.9875 scalefont setfont
```

```
()
```

```
nan nan M T
```

It appears that RSI attempted to update the EPS format in the move from 6.0.3 to 6.1. EPS files created with 6.0.3 show "%!PS-Adobe-2.0 EPSF-1.2" while files created with 6.1 show "%!PS-Adobe-3.0 EPSF-3.0". And the actual EPS code looks wildly different between the two. So, I guess it's back to IDL 6.0.3 for the time being.

-Mike

Subject: Re: IDL 6.1 EPS error

Posted by [Karl Schultz](#) on Wed, 27 Oct 2004 22:32:35 GMT

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"Mark Hadfield" <m.hadfield@niwa.co.nz> wrote in message
news:clp1nk\$uju\$1@newsreader.mailgate.org...

> Michael Wallace wrote:

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>> something really specific I'm doing wrong. I would post my code, but
>> right now it's spread over many files and functions.

Are there any text objects that contain empty text strings in your scene?

The problem you describe would happen only if a null text string was processed by the vector output module as the first text string it encountered. Remember, "first", means after depth sorting, so it may be hard to figure out exactly what text object is involved.

The first thing I'd do is make a quick check for empty text strings in your program, and just for now, set them to ' ' or something to see if the problem goes away. Once you have verified that this is the cause, a better solution is close at hand. Remember to consider text strings in axis objects, both tick text and title text. It is not unusual for some applications (like iTools) to create a text object with an empty string and use it to set the IDLgrAxis TITLE property, thinking that it will come back later and change the text without having to see if there was an object there first.

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> behaviour you have described resembles any of the bugs I am aware of,
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> is to be released in "a few weeks".

This bug is fixed in 6.1.1.

Subject: Re: IDL 6.1 EPS error
Posted by [Michael Wallace](#) on Wed, 27 Oct 2004 22:37:54 GMT
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> Are there any text objects that contain empty text strings in your scene?

Yes. I know I do this.

> The problem you describe would happen only if a null text string was
> processed by the vector output module as the first text string it
> encountered. Remember, "first", means after depth sorting, so it may be
> hard to figure out exactly what text object is involved.
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> applications (like iTools) to create a text object with an empty string and
> use it to set the IDLgrAxis TITLE property, thinking that it will come back
> later and change the text without having to see if there was an object there
> first.

I will try out this solution. It'll take me a few minutes to find all
the places in my code where I use empty strings.

> This bug is fixed in 6.1.1.

Cool. Any word on when 6.1.1 will be out or is it a "few weeks"? ;-)

-Mike

Subject: Re: IDL 6.1 EPS error
Posted by [Karl Schultz](#) on Wed, 27 Oct 2004 22:57:56 GMT
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"Michael Wallace" <mwallace.no.spam@no.spam.swri.edu.invalid> wrote in
message news:10o089qpr07oa4f@corp.supernews.com...

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> look at the actual EPS code created, but it didn't dawn on me until now.
> The EPS code is writing nan's to the actual EPS file. This only
> happens for my text objects and always follows the same pattern.

>

> /Courier findfont 13.9875 scalefont setfont

> ()

> nan nan M T

This answers the question I posed in my first posting to this thread. There
is an empty text string, as evidenced by the () in the PS code above.

If you can tolerate a space character in the text string, I'd suggest
putting a space character in the text string as a workaround. Or perhaps
some non-printable character.

I tried :

```
otext->setproperty, string=STRING(1b)
```

which seemed to work pretty well.

In the PS file I get:

```
()  
320 240 M T
```

where the square means undisplayable character, depending on what tool I use to look at the PS code. But a PostScript viewer would probably draw nothing for this string.

The bug was that when a string is completely empty, some character size information was not filled in. This led to the nan or inf numbers ending up in the output file. It also is a fairly random bug. If a reasonable value happened to be there, it might sometimes work.

```
>  
>  
> It appears that RSI attempted to update the EPS format in the move from  
> 6.0.3 to 6.1. EPS files created with 6.0.3 show "%!PS-Adobe-2.0  
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> And the actual EPS code looks wildly different between the two. So, I  
> guess it's back to IDL 6.0.3 for the time being.
```

The EPS version has nothing to do with it. Much of the vector output code was reworked in order to draw text objects as text primitives instead of as a set of triangles for IDL 6.1.

Karl

Subject: Re: IDL 6.1 EPS error

Posted by [Mark Hadfield](#) on Wed, 27 Oct 2004 23:10:10 GMT

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Karl Schultz wrote:

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> some non-printable character.  
>  
> [Several lines snipped]
```

>
>
> ...Much of the vector output code
> was reworked in order to draw text objects as text primitives instead of as
> a set of triangles for IDL 6.1.

Would another workaround be to set VECT_TEXT_RENDER_METHOD to 1 in
IDLgrClipboard::Draw, thereby reverting to the old method of
representing text?

--

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

Subject: Re: IDL 6.1 EPS error
Posted by [Karl Schultz](#) on Thu, 28 Oct 2004 15:22:32 GMT
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"Mark Hadfield" <m.hadfield@niwa.co.nz> wrote in message
news:clp9sl\$7k2\$1@newsreader.mailgate.org...
> Karl Schultz wrote:
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>> a set of triangles for IDL 6.1.
>
> Would another workaround be to set VECT_TEXT_RENDER_METHOD to 1 in
> IDLgrClipboard::Draw, thereby reverting to the old method of
> representing text?

Yes. But then you end up with triangles in the PS file. I don't know how
big a deal that is. It must be for some, otherwise we wouldn't have done
all this :-). Some also might think that the PS-rendered strings look

better or different. But it is an easy workaround.

Yet another workaround: The trick is to get a non-null text string out to the vector file before any other strings that could be null. One could add a view to their viewgroup or scene so that this new view draws first (first in container order). Put a model and single text string object containing a space char in this view. This view and its text string will always draw first, independent of the depth relationship of other objects and rotations, etc.

Karl

Subject: Re: IDL 6.1 EPS error
Posted by [Randall Skelton](#) on Thu, 28 Oct 2004 20:34:02 GMT
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Thanks for the clarification Karl. I'm **really** looking forward to getting 6.1.1 ;)

Subject: Re: IDL 6.1 EPS error
Posted by [Michael Wallace](#) on Thu, 28 Oct 2004 21:16:37 GMT
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> I will try out this solution. It'll take me a few minutes to find all
> the places in my code where I use empty strings.

Well, I tried replacing my empty strings with ' ' strings and there are no longer nan values in the EPS. Everything appears to work okay. I did happen to notice that the underflow error is still present in IDLgrClipboard -> draw, but it doesn't seem to cause any problems.

% Program caused arithmetic error: Floating underflow

Subject: Re: IDL 6.1 EPS error
Posted by [Karl Schultz](#) on Fri, 29 Oct 2004 14:43:10 GMT
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"Michael Wallace" <mwallace.no.spam@no.spam.swri.edu.invalid> wrote in message news:10o2odm89ncav58@corp.supernews.com...

>> I will try out this solution. It'll take me a few minutes to find all
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> no longer nan values in the EPS. Everything appears to work okay. I

> did happen to notice that the underflow error is still present in
> IDLgrClipboard -> draw, but it doesn't seem to cause any problems.
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> % Program caused arithmetic error: Floating underflow

Yes, I've seen this. As you probably know, it is not a serious problem, because the underflow just indicates a loss of precision, and the true value is closely approximated by zero.

I tried once to track this down and ended up thinking that the actual underflow is occurring in Mesa, which is the OpenGL-like library we use to produce the vector output. There are gobs of floating point math going on inside of Mesa, and IDL is just reporting the underflow state after a fairly long sequence of calls into Mesa. I'll have another look for next release.

Karl
