Subject: Re: smooth() bug in (at least) version 8.5.1
Posted by Burch on Fri, 02 Dec 2016 18:50:23 GMT
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On Friday, December 2, 2016 at 12:38:03 PM UTC-6, Jeff B wrote:
> On Friday, December 2, 2016 at 8:03:27 AM UTC-6, Helder wrote:
>> Hi,
>> I came across this bug and it's a "heavy" one, meaning that IDL crashes and you're thrown back out.
>>
>> The crashing commands are (try at own risk!):
>> sm = smooth(indgen(512,511), 9, /edge_mirror)
>> sm = smooth(indgen(512,510), 9, /edge_mirror)
>>
>> And just to be pedantic, I've tested a few other cases and these did NOT result in a crash:
>> sm = smooth(indgen(512,512), 9, /edge_mirror)
>> sm = smooth(indgen(511,511), 9, /edge_mirror)
>>
>> It appears that smooth (stopped?) being able to smooth rectangular arrays.
>>
>> By running the above from the command line I get the following error (for a couple of seconds on the command line terminal):
>> % Array has a corrupted descriptor: <no name>
>> % Execution halted at: $Main$
>>
>> And my IDL version.
>> IDL> !version
>> {
>> "ARCH": "x86_64",
>> "OS": "Win32",
>> "OS_FAMILY": "Windows",
>> "OS_NAME": "Microsoft Windows",
>> "RELEASE": "8.5.1",
>> "BUILD_DATE": "Nov 14 2015",
>> "MEMORY_BITS": 64,
>> "FILE_OFFSET_BITS": 64
>> }
>>
>> I others are brave enough, could you let me know if it crashes on other versions of IDL? Edge_mirror and _wrap have been added only in 8.1.
>>
>> Cheers,
>> Helder
>
> It failed for me too. However, I was able to work around it by doing the following:
>
> IDL> arr = indgen(512,511)
> IDL> sm1 = smooth(arr, [9,1], /edge_mirror)

> IDL> sm2 = smooth(sm1, [1,9], /edge_mirror)
>
> Interestingly, this only failed for me when using integer types. For example, when using floats it worked fine:
>
> IDL> arrFloat = float(arr)
> IDL> smFloat = smooth(arrFloat, 9, /edge_mirror)
>
> and to show that I get the same answer as above (at least in this case) by smoothing along each dimension in separate commands:
>
> IDL> smFLoat1 = smooth(arrFloat, [9,1], /edge_mirror)
> IDL> smFloat2 = smooth(smFloat1, [1,9], /edge_mirror)
> IDL> print, moment(smFloat2 - smFloat)
>   0.00000   0.00000   NaN   NaN
>
> IDL> !version
> {
>   "ARCH": "x86_64",
>   "OS": "darwin",
>   "OS_FAMILY": "unix",
>   "OS_NAME": "Mac OS X",
>   "RELEASE": "8.5",
>   "BUILD_DATE": "Jul 7 2015",
>   "MEMORY_BITS": 64,
>   "FILE_OFFSET_BITS": 64
> }
>
> -Jeff

I'm sure you know this, but I should make clear that the results for floats will NOT be the same as the results for integers. If you input an integer type then smooth will do integer math:

```
IDL> arr = indgen(5)
IDL> print, smooth(arr, 3, /edge_mirror)
      0       1       2       3       3
IDL> print, smooth(float(arr), 3, /edge_mirror)
    0.333333      1.00000      2.00000      3.00000      3.66667
```

-Jeff
