Subject: Re: Slither with matplotlib.mlab.PCA makes IDL crash
Posted by JP on Fri, 03 Oct 2014 00:19:40 GMT
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Thanks Chris,

I'm using IDL in a supercomputer and it has 8.2 :((by the way, it's listed as a "graphics package" wtf?) http://nci.org.au/nci-systems/national-facility/peak-system/ raijin/application-software/
Will check what are the chances of upgrading to 8.3 but I doubt it will be possible in the short term.
One of the reasons I need to use this python bridge is to be able to read .vrt files (see https://groups.google.com/d/msg/comp.lang.idl-pvwave/YF2EaUq nP_k/bhMcY_lqk8MJ) but now I'm stuck again :(

JP

On Friday, 3 October 2014 01:33:39 UTC+10, Chris Torrence wrote:
> On Thursday, October 2, 2014 5:24:36 AM UTC-6, JP wrote:
>
>> well,
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>> my IDL didn't crash with your code, Have you tried asking the people in www.jacquette.com ?
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>> JP
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>> [jpg599@raijin2 ~]$ idl
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>
>> IDL Version 8.2.1 (linux x86_64 m64). (c) 2012, Exelis Visual Information Solutions, Inc.
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>
>> Installation number: 237570.
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>
>> Licensed for use by: ANU Supercomputer Facility
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>
>> IDL> py = pyimport('__main__')
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>
>> py->exec, 'import matplotlib.mlab as mlab'
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>> py->exec, 'import numpy as np'
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>> py->exec, 'import random as r'
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>
>> py->exec, 'n = 50'
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>
>> py->exec, 'a = np.array([r.random() for i in range(n)]).reshape(1,n)'
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>
>> py->exec, 'b = np.array([r.random() for i in range(n)]).reshape(1,n)'
>
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>
>>  py->exec, 'r = np.concatenate((a,b), 0).transpose()'
>
>>
>
>>  Slither 3.0, by Jacquette Consulting, Inc. Built on 2014-02-03 11:40:48.314070
>
>>
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>>  http://www.jacquette.com
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>> SOFTWARE.

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>> % Loaded DLM: SLITHER.

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>> IDL> py->exec, 'import matplotlib.mlab as mlab'

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>> IDL> py->exec, 'import numpy as np'

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>> IDL> py->exec, 'import random as r'

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>> IDL> py->exec, 'n = 50'

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>
>> IDL> py->exec, 'a = np.array([r.random() for i in range(n)]).reshape(1,n)'
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>
>> IDL> py->exec, 'b = np.array([r.random() for i in range(n)]).reshape(1,n)'
>
>>
>
>> IDL> py->exec, 'r = np.concatenate((a,b), 0).transpose()'
>
>>
>
>> IDL> py->exec, 'p = mlab.PCA(r)' ; it crashes here
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>> IDL>
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>> On Thursday, 2 October 2014 20:04:45 UTC+10, Fabien  wrote:
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>>> Hi JP,
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>>> On 02.10.2014 04:01, JP wrote:

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>>>> So i get an error when trying to do 'a = np.array([r.random() for n in range(n)]).reshape(1,n)'

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>>>> but in any case, no crash when I get to the mlab.PCA.

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>>> yes this was a stupid error in the python code. This should work better:

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>>> py = pyimport('__main__')
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>>> py->exec, 'import matplotlib.mlab as mlab'
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>>> py->exec, 'a = np.array([r.random() for i in range(n)]).reshape(1,n)'
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>>> py->exec, 'b = np.array([r.random() for i in range(n)]).reshape(1,n)'
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>>> py->exec, 'r = np.concatenate((a,b), 0).transpose()'
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>>> py->exec, 'p = mlab.PCA(r)' ; it crashes here
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>>> And this still makes IDL crash on my machine. I gave up on using slither
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>>> long ago now, which is a pity since I'd like to play around with python
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\>\>\> in IDL much more often...
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\> Hi Fabien and JP,
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\> I've played around with Slither a bit, and I have some suggestions. First, I would strongly recommend not bothering to try it in IDL 8.2.x or earlier. It was compiled against IDL 8.3, and if you can somehow get it to work with an earlier version, you are getting extremely lucky. If it crashes against IDL 8.2.x, I wouldn't even try to dig deeper. This is because the symbol tables tend to shift around with each new release of IDL, and your DLM ends up pointing at the wrong symbols (IDL_Deltmp instead of IDL_Gettmp, for example :-).
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\> With IDL 8.4, we tried very hard to keep the symbol table the same as IDL 8.3, specifically so that Slither would keep working - so you should be able to upgrade to IDL 8.4 (in a few weeks) without any problems.
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\> Second, I think using "Exec" is not the right approach. Slither was really designed to mimic the Python API from within IDL. For example, I would rewrite your code as:
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\> mlab = pyimport("matplotlib.mlab")
\>
\> np = pyimport("numpy")
\>
\> r = pyimport("numpy.random")
\>
\> n = 50
\>
\> a = r.rand(n) ; why not use IDL's mersenne twister??
\>
\> b = r.rand(n)
\>
\> c = TRANSPOSE([[a],[b]])
\>

> p = mlab.PCA(c)
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>
> Now, obviously if you want to use things like Python generators or Lambda functions, you will need to use Exec. But in general, it will make your code cleaner and easier to debug if you simply treat the Python objects just like IDL objects and call methods directly on the imported libraries.
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>
> Hope this helps a bit.
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> Cheers,
>
> Chris
>
> ExelisVIS