Subject: Problems with DPMGen and Geant4
Posted by Tobias Stockmanns on Fri, 10 Aug 2007 07:38:54 GMT
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Dear Simulators,

I encountered a problem running a simulation with the DPM generator in Geant4. After 298 events the simulation crashes with:
*** Break *** floating point exception

The strange thing is that I do not simulate any detector. I only have the cave, the magnets, and the pipes included. This error does not appear in Geant3 and the number of events after the error happens is independent of the random seed I use in the ./DPMGen programm.
My PandaRoot is at revision 1197.

Has anybody else seen this problem or knows even how to fix it?

Cheers,

Tobias

Subject: Re: Problems with DPMGen and Geant4
Posted by StefanoSpataro on Fri, 10 Aug 2007 07:42:49 GMT
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Sebastian has found something similar with the lambda, and if I remember well even Alicia.
It is not a problem of detector, but (I think) of particle propagation.
Not all the particles and not all the processes are well defined in our physics lists, so I think sometimes Geant4 finds some particles and does not know what to do with them, how to let them interact.

Subject: Re: Problems with DPMGen and Geant4
Posted by Florian Uhlig on Fri, 10 Aug 2007 07:48:01 GMT
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Hi Tobias

Can you sent the traceback following the line

*** Break *** floating point exception

otherwise it is hard to get an idea where the error occurs.

Ciao

Florian

Subject: Re: Problems with DPMGen and Geant4
Posted by Tobias Stockmanns on Fri, 10 Aug 2007 08:03:54 GMT
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Here comes the trace back.

Using host libthread_db library "/lib/tls/libthread_db.so.1".
Attaching to program: /proc/28759/exe, process 28759
`system-supplied DSO at 0xffffe000' has disappeared; keeping its symbols.
[Thread debugging using libthread_db enabled]
[New Thread 1099541568 (LWP 28759)]
0xffffe410 in __kernel_vsyscall ()
#1 0x417d30a3 in __waitpid_nocancel () from /lib/tls/libc.so.6
#2 0x4177bcb9 in do_system () from /lib/tls/libc.so.6
#3 0x417407ad in system () from /lib/tls/libpthread.so.0
#4 0x402a533f in TUnixSystem::Exec () from
/home/stockman/fairroot/cbmsoft/tools/root/lib/libCore.so.5.14
#5 0x402ace80 in TUnixSystem::StackTrace () from
/home/stockman/fairroot/cbmsoft/tools/root/lib/libCore.so.5.14
#6 0x402ac293 in TUnixSystem::DispatchSignals () from
/home/stockman/fairroot/cbmsoft/tools/root/lib/libCore.so.5.14
#7 0x402ac419 in SigHandler () from
/home/stockman/fairroot/cbmsoft/tools/root/lib/libCore.so.5.14
#8 0x402a61c4 in sighandler () from
/home/stockman/fairroot/cbmsoft/tools/root/lib/libCore.so.5.14
#9 <signal handler called>
#10 0x450ce246 in G4UrbanMscModel::SampleCosineTheta ()
from /home/stockman/fairroot/cbmsoft/transport/geant4/lib/Linux-g++/libG4emst andard.so
#11 0x450cf5e1 in G4UrbanMscModel::SampleSecondaries ()
from /home/stockman/fairroot/cbmsoft/transport/geant4/lib/Linux-g++/libG4emst andard.so
#12 0x4505192b in G4VMultipleScattering::PostStepDoIt ()
from /home/stockman/fairroot/cbmsoft/transport/geant4/lib/Linux-g++/libG4emut ils.so
#13 0x463af267 in G4SteppingManager::InvokePSDIP ()
from /home/stockman/fairroot/cbmsoft/transport/geant4/lib/Linux-g++/libG4trac king.so
#14 0x463af506 in G4SteppingManager::InvokePostStepDoItProcs ()
from /home/stockman/fairroot/cbmsoft/transport/geant4/lib/Linux-g++/libG4trac king.so
#15 0x463ab46a in G4SteppingManager::Stepping ()
from /home/stockman/fairroot/cbmsoft/transport/geant4/lib/Linux-g++/libG4trac king.so
#16 0x463b4f8e in G4TrackingManager::ProcessOneTrack ()
from /home/stockman/fairroot/cbmsoft/transport/geant4/lib/Linux-g++/libG4trac king.so
#17 0x4642b45e in G4EventManager::DoProcessing ()
from /home/stockman/fairroot/cbmsoft/transport/geant4/lib/Linux-g++/libG4even t.so
#18 0x4642c0e7 in G4EventManager::ProcessOneEvent ()
from /home/stockman/fairroot/cbmsoft/transport/geant4/lib/Linux-g++/libG4even t.so
#19 0x464a7def in G4RunManager::DoEventLoop ()
from /home/stockman/fairroot/cbmsoft/transport/geant4/lib/Linux-g++/libG4run. so
#20 0x464a6284 in G4RunManager::BeamOn () from
/home/stockman/fairroot/cbmsoft/transport/geant4/lib/Linux-g++/libG4run. so
#21 0x47627194 in TG4RunManager::ProcessRun ()
from /home/stockman/fairroot/cbmsoft/transport/geant4_vmc/lib/tgt_linux/libge ant4vmc.so
#22 0x4762c90b in TGeant4::ProcessRun ()
from /home/stockman/fairroot/cbmsoft/transport/geant4_vmc/lib/tgt_linux/libge ant4vmc.so

#23 0x446551dd in CbmMCApplication::RunMC (this=0x8f90660, nofEvents=500)
    at /home/stockman/fairroot/cbmsoft/pandaroot/base/CbmMCApplication.cxx:229
#24 0x4466827f in CbmRunSim::Run (this=0x8be0590, NStart=500, NStop=0)
    at /home/stockman/fairroot/cbmsoft/pandaroot/base/CbmRunSim.cxx:129
#25 0x4468cead in G__CbmDict_777_0_7 (result7=0xbfd1848c, funcname=0x8bdade0 "\001",
libp=0xbfd149e8, hash=0)
    at /home/stockman/fairroot/cbmsoft/cbuild/base/CbmDict.cxx:9497
#26 0x4084c597 in Cint::G__ExceptionWrapper () from
/home/stockman/fairroot/cbmsoft/tools/root/lib/libCint.so.5.14
#27 0x408f0d08 in G__call_cppfunc () from
/home/stockman/fairroot/cbmsoft/tools/root/lib/libCint.so.5.14
#28 0x408db995 in G__interpret_func () from
/home/stockman/fairroot/cbmsoft/tools/root/lib/libCint.so.5.14
#29 0x408d13b3 in G__getfunction () from
/home/stockman/fairroot/cbmsoft/tools/root/lib/libCint.so.5.14
#30 0x4095c5fd in G__getstructmem () from
/home/stockman/fairroot/cbmsoft/tools/root/lib/libCint.so.5.14
#31 0x40954628 in G__getvariable () from
/home/stockman/fairroot/cbmsoft/tools/root/lib/libCint.so.5.14
#32 0x408b2a66 in G__getitem () from
/home/stockman/fairroot/cbmsoft/tools/root/lib/libCint.so.5.14
#33 0x408bd5a3 in G__getexpr () from
/home/stockman/fairroot/cbmsoft/tools/root/lib/libCint.so.5.14
#34 0x4090acd7 in G__exec_function () from
/home/stockman/fairroot/cbmsoft/tools/root/lib/libCint.so.5.14
#35 0x4091049d in G__exec_statement () from
/home/stockman/fairroot/cbmsoft/tools/root/lib/libCint.so.5.14
#36 0x408a0546 in G__exec_tempfile_core () from
/home/stockman/fairroot/cbmsoft/tools/root/lib/libCint.so.5.14
#37 0x408a075d in G__exec_tempfile () from
/home/stockman/fairroot/cbmsoft/tools/root/lib/libCint.so.5.14
#38 0x4091b939 in G__process_cmd () from
/home/stockman/fairroot/cbmsoft/tools/root/lib/libCint.so.5.14
#39 0x402139cb in TCint::ProcessLine () from
/home/stockman/fairroot/cbmsoft/tools/root/lib/libCore.so.5.14
#40 0x40210d97 in TCint::ProcessLineSynch () from
/home/stockman/fairroot/cbmsoft/tools/root/lib/libCore.so.5.14
#41 0x4014ba0b in TApplication::ProcessFile () from
/home/stockman/fairroot/cbmsoft/tools/root/lib/libCore.so.5.14
#42 0x40148e87 in TApplication::ProcessLine () from
/home/stockman/fairroot/cbmsoft/tools/root/lib/libCore.so.5.14
#43 0x415dd3db in TRint::Run () from
/home/stockman/fairroot/cbmsoft/tools/root/lib/libRint.so.5.14
#44 0x08048dc0 in main ()

I hope it helps .

Cheers,

Tobias

Subject: Re: Problems with DPMGen and Geant4
Posted by StefanoSpataro on Fri, 10 Aug 2007 08:08:24 GMT
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G4UrbanMscModel::SampleCosineTheta () :
The same problem of Sebastian.

Is there a way to see which particle is creating this error?

Subject: Re: Problems with DPMGen and Geant4
Posted by asanchez on Fri, 10 Aug 2007 08:23:11 GMT
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hi all, it was even the same that
i had.
Is there still any progress on how to solve it?

best regards
alicia.

Subject: Re: Problems with DPMGen and Geant4
Posted by Florian Uhlig on Fri, 10 Aug 2007 08:57:19 GMT
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Hi

I think i solved the problem by installing geant4 version 8.3.
You can try to use this version at GSI doing the following steps.

> export SIMPATH=/misc/cbmsoft/Debian3.1/debug
> cd <your_build_directory>
> cmake <your_source_directory>
> . config.sh

Please test this version and tell me if the problems are gone for all of you.

I will go on to create a new version of our external packages which then can be downloaded from the CbmRoot webpage.

Ciao

Florian

Subject: Re: Problems with DPMGen and Geant4
Posted by Aida Galoyan on Fri, 10 Aug 2007 08:58:05 GMT
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Hi all,

G4UrbanMscModel::SampleCosineTheta () :

Urban's model handle with elechtromagnetic scattering.
We are not experienced in this, but we assume that
cave materials and thresholds are not given appropriately.
May be, by default there are strange things.

The problem doesn't belong to DPM generator.

Of course, may be DPM gives a particle what is out of G4.
Can you sent the list of particles or "dpm_out_root_file"
generated by DPM generator.

Cheers, Aida

Subject: Re: Problems with DPMGen and Geant4
Posted by asanchez on Fri, 10 Aug 2007 09:10:05 GMT
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Dear all,
by running under geant4

i get this error
Any ideas??

lxg0310:hyp>root sim_hyp.C -l
root [0]
Processing sim_hyp.C...

PSaid instance created... access via gSaid->f()

- RTDB container factory CbmBaseContFact
- RTDB container factory CbmFieldContFact
- RTDB container factory CbmPassiveContFact
- RTDB container factory CbmHypContFact
-I- CbmRun::SetMaterials() Media file used:
/u/asanchez/fairroot_prueba/pandaroot/geometry/media_pnd_hyp.geo
-I CbmAsciiGenerator: Opening input file /d/panda01/asanchez/PANDA/ximinAscii.dat
SetStoreTraj1

========== CbmRunSim: Initialising simulation run ==========
Info in <TGeoManager::TGeoManager>: Geometry CBMGeom, CBM geometry created
-I- CbmGeoMedia Read media
Loading Geant4 granular libraries ...
dlopen error: /misc/cbmsoft/Debian3.1/debug/transport/geant4/lib/Linux-g++/libG4hadron
ic_xsect.so: undefined symbol: _ZN16G4StableIsotopes12nucleonCountE
Load Error: Failed to load Dynamic link library

```
/misc/cbmsoft/Debian3.1/debug/transport/geant4/lib/Linux-g++/libG4hadron ic_xsect.so
(int)(-1)
*** Interpreter error recovered ***
dlopen error: /u/asanchez/fairroot_prueba/build/lib/libCbmG4.so: undefined symbol:
_ZN19TG4RunConfiguration26CreateDetectorConstructionEv
Load Error: Failed to load Dynamic link library
/u/asanchez/fairroot_prueba/build/lib/libCbmG4.so
 CbmMCApplication::InitMC
*** Interpreter error recovered ***
Error: Function Config() is not defined in current scope  (tmpfile):1:
*** Interpreter error recovered ***

 *** Break *** segmentation violation
Using host libthread_db library "/lib/libthread_db.so.1".
Attaching to program: /proc/379/exe, process 379
`system-supplied DSO at 0xffffe000' has disappeared; keeping its symbols.
done.
done.
[Thread debugging using libthread_db enabled]
[New Thread 16384 (LWP 379)]
done.
done.
done.
done.
done.
done.
done.
done.
done.
0x41b22788 in waitpid () from /lib/libc.so.6
#1  0x41baa8c0 in __DTOR_END__ () from /lib/libc.so.6
#2  0x41abb442 in do_system () from /lib/libc.so.6
#3  0x41a36c5f in system () from /lib/libpthread.so.0
#4  0x40306e57 in TUnixSystem::Exec (this=0x831a3c0,
    at unix/src/TUnixSystem.cxx:1768
#5  0x4030730c in TUnixSystem::StackTrace (this=0x831a3c0) at
unix/src/TUnixSystem.cxx:1953
#6  0x40305291 in TUnixSystem::DispatchSignals (this=0x831a3c0,
sig=kSigSegmentationViolation)
    at unix/src/TUnixSystem.cxx:936
#7  0x40303544 in SigHandler (sig=kSigSegmentationViolation) at
unix/src/TUnixSystem.cxx:338
#8  0x4030a02f in sighandler (sig=11) at unix/src/TUnixSystem.cxx:3142
#9  0x41a35825 in __pthread_sighandler () from /lib/libpthread.so.0
#10 <signal handler called>
#11 0x44cae9db in CbmMCApplication::InitMC (this=0x8c90d80,
    setup=0x8d395c8 "/u/asanchez/fairroot_prueba/pandaroot/gconfig/g4Config.C")
    at /u/asanchez/fairroot_prueba/pandaroot/base/CbmMCApplication.cxx:210
#12 0x44cbfbb4 in CbmRunSim::Init (this=0x8ba1568)
    at /u/asanchez/fairroot_prueba/pandaroot/base/CbmRunSim.cxx:108
#13 0x44cef93c in G__CbmDict_777_0_6 (result7=0xbfda8a30, funcname=0x8b9ba40 "\001",
libp=0xbfda5450, hash=0)
```

    at /u/asanchez/fairroot_prueba/build/base/CbmDict.cxx:9484
#14 0x409865a0 in Cint::G__ExceptionWrapper (funcp=0x44cef916 <G__CbmDict_777_0_6>,
result7=0xbfda8a30,
    funcname=0x8b9ba40 "\001", libp=0xbfda5450, hash=0) at cint/src/Api.cxx:355
#15 0x40a68254 in G__call_cppfunc (result7=0xbfda8a30, libp=0xbfda5450,
ifunc=0x8b9ba40, ifn=0)
    at cint/src/v6_newlink.cxx:465
#16 0x40a50670 in G__interpret_func (result7=0xbfda8a30, funcname=0xbfda8630 "Init",
libp=0xbfda5450, hash=404,
    p_ifunc=0x8b9ba40, funcmatch=1, memfunc_flag=1) at cint/src/v6_ifunc.cxx:5167
#17 0x40a324df in G__getfunction (item=0xbfdaaa86 "Init()", known3=0xbfdaa2cc,
memfunc_flag=1)
    at cint/src/v6_func.cxx:2600
#18 0x40afce0a in G__getstructmem (store_var_type=112, varname=0xbfda9f30 "basiclibs",
    membername=0xbfdaaa86 "Init()", tagname=0xbfda9290 "fRun", known2=0xbfdaa2cc,
varglobal=0x40b81820, objptr=2)
    at cint/src/v6_var.cxx:4468
#19 0x40af0d17 in G__getvariable (item=0xbfdaaa80 "fRun->Init()", known2=0xbfdaa2cc,
varglobal=0x40b81820,
    varlocal=0x0) at cint/src/v6_var.cxx:3234
#20 0x40a2465e in G__getitem (item=0xbfdaaa80 "fRun->Init()") at cint/src/v6_expr.cxx:1846
#21 0x40a2220e in G__getexpr (expression=0xbfdabff0 "fRun->Init()") at
cint/src/v6_expr.cxx:1315
#22 0x40a88f59 in G__exec_function (statement=0xbfdabff0 "fRun->Init()", pc=0xbfdabfec,
piout=0xbfdabfe0,
    plargestep=0xbfdabfd0, presult=0xbfdac3f0) at cint/src/v6_parse.cxx:457
#23 0x40a95125 in G__exec_statement () at cint/src/v6_parse.cxx:4187
#24 0x409fbb24 in G__exec_tempfile_core (
    file=0xbfdb4cb0 "/u/asanchez/fairroot_prueba/pandaroot/macro/hyp/./sim_hyp.C", fp=0x0)
    at cint/src/v6_debug.cxx:358
#25 0x409fbeff in G__exec_tempfile (
    file=0xbfdb4cb0 "/u/asanchez/fairroot_prueba/pandaroot/macro/hyp/./sim_hyp.C") at
cint/src/v6_debug.cxx:433
#26 0x40aa0982 in G__process_cmd (line=0x408c1c87 "/gconfig/g4Config.C",
prompt=0x831d84c "", more=0x831d844,
    err=0xbfdb551c, rslt=0xbfdb5520) at cint/src/v6_pause.cxx:3218
#27 0x4025a6f4 in TCint::ProcessLine (this=0x831d828, line=0x408c1c87
"/gconfig/g4Config.C", error=0xbfdb5e24)
    at meta/src/TCint.cxx:318
#28 0x4025a89f in TCint::ProcessLineSynch (this=0x831d828, line=0x408c1c87
"/gconfig/g4Config.C",
    error=0xbfdb5e24) at meta/src/TCint.cxx:351
#29 0x40161bda in TApplication::ProcessFile (this=0x8368c88, name=0xbfdb5c63
"sim_hyp.C", error=0xbfdb5e24)
    at base/src/TApplication.cxx:804
#30 0x401613da in TApplication::ProcessLine (this=0x8368c88, line=0xbfdb5c60 ".x
sim_hyp.C", sync=false,
    err=0xbfdb5e24) at base/src/TApplication.cxx:676
#31 0x4190563d in TRint::Run (this=0x8368c88, retrn=false) at rint/src/TRint.cxx:328
#32 0x08048ede in main (argc=1, argv=0xbfdb5ee4) at main/src/rmain.cxx:29

Subject: Re: Problems with DPMGen and Geant4
Posted by Florian Uhlig on Fri, 10 Aug 2007 09:14:59 GMT
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Hi Alicia

There is a problem with the order of the libraries loaded.
Please update the gconfig/g4libs.C to the newest version.
After this change everything should work.

Ciao

Florian

Subject: Re: Problems with DPMGen and Geant4
Posted by Tobias Stockmanns on Fri, 10 Aug 2007 09:25:47 GMT
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Hi Florian,

I have not installed pandaRoot at GSI. So either I will do so or I will update my Geant4 at my local machine. Unfortunately both takes times. But once it is done I will inform you.

By the way is there a reason not to update to Geant4.9.0 but to take 8.3?

Ciao,

Tobias

Subject: Re: Problems with DPMGen and Geant4
Posted by StefanoSpataro on Fri, 10 Aug 2007 09:32:28 GMT
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I think there were no official decision (yet) on use new external packages.
In theory we should upgrade not only g4, but even vmc and root (5.16). And we wait for the new changes in TGeant3 to use GEANE, and with Ivana we are trying to update the physics lists.

So I think it is better to use the gsi debug installation as test, but to postpone the official update of the external packages... of course if you do not want to recompile geant4 and the other stuff several times in few months

Subject: Re: Problems with DPMGen and Geant4
Posted by asanchez on Fri, 10 Aug 2007 09:33:26 GMT
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Hi Florian,
yes it works
thanks thanks a lot:)

Alicia.

Subject: Re: Problems with DPMGen and Geant4
Posted by Florian Uhlig on Fri, 10 Aug 2007 09:36:34 GMT
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Hi Tobias

> By the way is there a reason not to update to Geant4.9.0 but
> to take 8.3?

The reason is that updating to version 9.0 is only possible when updating also geant4vmc and root.
The real problem is that the new root version has several changes
of the interface which breaks backward compatibility of our framework. So we need some more time for tests and discussions
before we can do this step.

Ciao

Florian

Subject: Re: Problems with DPMGen and Geant4
Posted by StefanoSpataro on Sat, 11 Aug 2007 12:55:04 GMT
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Hi,
I would like to reproduce the error you got.

Could you please tell me what did you use exactly, since DPM options to your simulation macro?

If even Sebastian and Alicia could send me the same, so that I can check if everything was solved or not with the new stuff... that could be good.

Bye

Subject: Re: Problems with DPMGen and Geant4
Posted by Tobias Stockmanns on Mon, 13 Aug 2007 07:13:28 GMT
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Hi Stefano,

I used the DPM generator to create a root file. The settings were: random number 123456. / 15 GeV/c / Elastic and inelastic scattering / 100000 events.

I tried different combinations for the random number but the error and the event number when it happens is always the same (298). The event number changes to 274 if I add the MVD simulation to my macro.

I have added the macro I use to this message.

Please tell me if you see the same error or not.

Thank you,

Tobias

File Attachments

1) runMvdSim.C, downloaded 545 times

Subject: Re: Problems with DPMGen and Geant4
Posted by Florian Uhlig on Mon, 13 Aug 2007 07:55:48 GMT
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Hi Stefano

The problem has nothing to do with DPM generator. The problem comes from Geant4 (see traceback below). Don't waste your time in searching errors.

```
#10 0x450ce246 in G4UrbanMscModel::SampleCosineTheta ()
```

This routine has some known errors in Geant4 version 8.2. This is the reason to go to version 8.3 were this bugs are fixed.

Ciao

Florian

Subject: Re: Problems with DPMGen and Geant4
Posted by StefanoSpataro on Mon, 13 Aug 2007 07:58:22 GMT
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I never said that it was DPM fault,
I am just trying with geant4 v9.0
