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Subject: Reco error at Geant4 simulation  
Posted by [donghee](#) on Thu, 31 Oct 2013 10:07:49 GMT  
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Dear all,

I am trying to do a simulation with Geant4 using trunk(today morning version...)  
Upto sim->dig should be fine.

At reconstruction, probably I have a trouble to load G4 library.  
During the initialization of FairGeane::Init(), I have seen the message  
"Loading Geant3 libraries ...", but I have used Geant4 for this simulation, why such messages  
are appeared?

And the end of reco process the simulation is crashed with following error.

Quote:

```
terminate called after throwing an instance of 'std::out_of_range'  
  what(): vector::_M_range_check
```

What is this?

Here is the full output from reco session during simulation.

Quote:

```
root [0]  
Processing run_offline3_rec.C("test_geant4", 5, 15, 5, "dell")...  
Error in <TClonesArray::SetClass>: called with a null pointer  
FairRootManager::OpenOutFile("/home/kang/GSI/macro_online/data/test_geant4/data_5_rec.r  
oot ")  
Info in (PndGeoHandling::Instance): Making a new instance using the framework.  
[INFO ] The input consists out of the following trees and files:  
[INFO ] - cbmsim  
[INFO ] - /home/kang/GSI/macro_online/data/test_geant4/data_5_dig.root  
[INFO ] - FriendTree_1  
[INFO ] - /home/kang/GSI/macro_online/data/test_geant4/data_5_sim.root  
[INFO ] Parameter and input file are available, Assure that basic info is there for the run!  
[INFO ] The number of entries in chain is 5
```

```
*****
```

```
  initialisation for run id 1383213357
```

```
*****
```

```
*****
```

```
  initialisation for run id 1383213357
```

```
*****
```

```
*****
```

```
  initialisation for run id 1383213357
```

```
*****
```

```
.....
```

```
-----FairGeane::Init ()-----
```

Loading Geant3 libraries ...  
Loading Geant3 libraries ... finished

MZSTOR. ZEBRA table base TAB(0) in /MZCC/ at adr 1055673399 3EEC4C37 HEX

MZSTOR. Initialize Store 0 in /GCBANK/  
with Store/Table at absolute adrs 1055782645 1055673399  
HEX 3EEDF6F5 3EEC4C37  
HEX 1AB22 0  
relative adrs 109346 0  
with 1 Str. in 2 Links in 5300 Low words in 4999970 words.  
This store has a fence of 16 words.

MZLOGL. Set Log Level 0 for store 0  
1\*\*\*\*\* GEANT Version 3.21/11 Released on 100298  
0\*\*\*\*\* Correction Cradle Version 0.1100

MZDIV. Initialize Division Constant in Store 0  
NW/NWMAX= 20004000000, MODE/KIND= 1 2  
Division 20 initialized.

MZLINK. Initialize Link Area /GCLINK/ for Store 0 NL/NS= 20 20

MZLINK. Initialize Link Area /GCSLNK/ for Store 0 NL/NS= 100 100  
-I- G3Config: Geant3 with TGeo has been created for Geane.  
-I- Geane.C: NOPRNT flag set to 1  
-I- Geane.C: IERR flags are not printed. If you want to switch them on, please set  
fErtrio1->noprnt = 0 in Geane.C  
Energy straggling area parameter from user set to: 0.999

Calculating cross section tables, see gphysi.dat for more information

Cross section calculation concluded successfully  
I- FairGeane::FairGeane: Geane is Initialized  
-W- PndMvdRiemannTrackFinderTask::Init: No Branch Names given with  
AddHitBranch(TString branchName)! Standard BranchNames taken!  
-I- PndMvdRiemannTrackFinderTask: Initialisation successfull  
-I- PndTrkTracking: Initialization successfull  
-I- PndTrkTracking: Initialization successfull  
-I- -----  
-I- PndSttMvdGemTracking: using branches MVDHitsPixel MVDHitsStrip STTHit GEMHit  
-I- to change one or more of these use PndSttMvdGemTracking:SetBranchName( TStrings );  
the order of TStrings is mvd pixel name, mvd strip name, stt name, gem name  
starting track for extrapolation SttMvdTrack SttMvdTrackCand  
-I- -----  
-I- PndSttMvdGemTracking: using default PDG -13  
-I- PndSttMvdGemTracking: Intialisation successfull  
-I- PndMCTrackAssociator::Init  
[INFO ] Branch: STTHitMix not found in Tree  
[INFO ] Branch: STTHitMix not found in Tree  
-W- PndMCTrackAssociator::Init: Using STTHit array  
[INFO ] Branch: MVDHitsStripMix not found in Tree

```

[INFO ] Branch: MVDHitsStripMix not found in Tree
-W- PndMCTrackAssociator::Init: Using MVDHitsStrip array
[INFO ] Branch: MVDHitsPixelMix not found in Tree
[INFO ] Branch: MVDHitsPixelMix not found in Tree
-W- PndMCTrackAssociator::Init: Using MVDHitsPixel
-I- PndRecoKalmanTask:Init :: Using GeaneTrackRep
#####Mapper:filltubearray#####
fGeoType=1
*** PndRecoKalmanFit::Init MVDHitsStrip array found
*** PndRecoKalmanFit::Init MVDHitsPixel array found
[INFO ] Branch: SttHelixHit not found in Tree
[INFO ] Branch: SttHelixHit not found in Tree
*** PndRecoKalmanFit::Init SttHit array found
*** PndRecoKalmanFit::Init GEMHit array found
*** PndRecoKalmanFit::Init MdtHit array found
*** PndRecoKalmanFit::Init FtsHit array found
===PndRecoKalmanFit::Init() finished
=====
-I- PndMCTrackAssociator::Init
[INFO ] Branch: STTHitMix not found in Tree
[INFO ] Branch: STTHitMix not found in Tree
-W- PndMCTrackAssociator::Init: Using STTHit array
[INFO ] Branch: MVDHitsStripMix not found in Tree
[INFO ] Branch: MVDHitsStripMix not found in Tree
-W- PndMCTrackAssociator::Init: Using MVDHitsStrip array
[INFO ] Branch: MVDHitsPixelMix not found in Tree
[INFO ] Branch: MVDHitsPixelMix not found in Tree
-W- PndMCTrackAssociator::Init: Using MVDHitsPixel
Warning in <TDatabasePDG::TDatabasePDG>: object already instantiated
#####Mapper:filltubearray#####
fGeoType=1
-I- PndRecoKalmanTask:Init :: Using GeaneTrackRep
#####Mapper:filltubearray#####
fGeoType=1
*** PndRecoKalmanFit::Init MVDHitsStrip array found
*** PndRecoKalmanFit::Init MVDHitsPixel array found
[INFO ] Branch: SttHelixHit not found in Tree
[INFO ] Branch: SttHelixHit not found in Tree
*** PndRecoKalmanFit::Init SttHit array found
*** PndRecoKalmanFit::Init GEMHit array found
*** PndRecoKalmanFit::Init MdtHit array found
*** PndRecoKalmanFit::Init FtsHit array found
===PndRecoKalmanFit::Init() finished
=====
-I- PndMCTrackAssociator::Init
[INFO ] Branch: STTHitMix not found in Tree
[INFO ] Branch: STTHitMix not found in Tree
-W- PndMCTrackAssociator::Init: Using STTHit array
[INFO ] Branch: MVDHitsStripMix not found in Tree
[INFO ] Branch: MVDHitsStripMix not found in Tree
-W- PndMCTrackAssociator::Init: Using MVDHitsStrip array
[INFO ] Branch: MVDHitsPixelMix not found in Tree

```

```
[INFO ] Branch: MVDHitsPixelMix not found in Tree
-W- PndMCTrackAssociator::Init: Using MVDHitsPixel
[INFO ] The number of entries in chain is 5
terminate called after throwing an instance of 'std::out_of_range'
what(): vector::_M_range_check
```

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Subject: Re: Reco error at Geant4 simulation  
Posted by [Stefano Spataro](#) on Fri, 01 Nov 2013 22:18:14 GMT  
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The Geant3 message is normal, since we use geane which is based on geant3. This is independent from the simulation, then also if you use geant4 it is fine. I have run a g4 simulation and I cannot see problems with the reco. Are you sure you did not mess something in your macros?  
Could you please upload your macros, modified so that so that one can reproduce your problem?

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Subject: Re: Reco error at Geant4 simulation  
Posted by [donghee](#) on Sun, 03 Nov 2013 16:00:52 GMT  
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Hi, Stefano

If I try this code with apr13 release PADNAroot version, then everything is fine. But with recent trunk version, I have still following error at reco part (rec.C).

Quote:

```
[INFO ] The number of entries in chain is 5
terminate called after throwing an instance of 'std::out_of_range'
what(): vector::_M_range_check
root [0] your simulation is crashed!!!!!!!!!!
```

In order to test and reproduce this error, copy all files to tmporal directory, then load build panda by `./config.sh` and finally just `./do_simulation.sh`

Thank you for your help.  
Donghee

## File Attachments

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- 1) [run\\_offline3\\_sim.C](#), downloaded 458 times
  - 2) [run\\_offline3\\_dig.C](#), downloaded 444 times
  - 3) [run\\_offline3\\_rec.C](#), downloaded 442 times
  - 4) [run\\_offline3\\_pid.C](#), downloaded 444 times
  - 5) [do\\_simulation.sh](#), downloaded 383 times
- 

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Subject: Re: Reco error at Geant4 simulation

Posted by [StefanoSpataro](#) on Sun, 03 Nov 2013 17:35:34 GMT

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In my computer your reco macro crashes, but if I run the macro/run/reco\_complete.C from the output of your sim+digi macros, it works.

I presume you have some problem in your reco macro, since it is different from the standard one I am not sure where the problem stays, maybe you should try to load the sim file and use the digi as friend (you do the opposite). Or take the standard reco macro.

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Subject: Re: Reco error at Geant4 simulation

Posted by [donghee](#) on Sun, 03 Nov 2013 20:17:18 GMT

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Hi Stefano

If I turn off Mvd Riemann in reco.C, simulation for Geant4 is fine.

Quote:

```
PndMvdRiemannTrackFinderTask* mvdTrackFinder = new
PndMvdRiemannTrackFinderTask();
mvdTrackFinder->SetVerbose(iVerbose);
mvdTrackFinder->SetMaxDist(0.05);
mvdTrackFinder->SetPersistence(kFALSE);
fRun->AddTask(mvdTrackFinder);
```

Thank you for your kind debugging...

I would like to close this session.

Best wishes,  
Donghee

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Subject: Re: Reco error at Geant4 simulation

Posted by [StefanoSpataro](#) on Sun, 03 Nov 2013 20:20:09 GMT

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The mvdriemann is not in the default reco macros anymore. However, I suppose Tobias should check what is going wrong there.

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