Subject: Simulation crashes after "singular matrix" in digitization macro
Posted by Christian Leitold on Fri, 04 Sep 2009 12:16:33 GMT
View Forum Message <> Reply to Message

Hello,

I have discovered a serious problem in our full simulation: So far, in the last few days I have only done short simulations with a limited number of events, never more than about 50. Now, after doing a little bit more, I was very surprised that the simulation suddenly crashed. I think the reason is in some way to related to an error in the digitization run:

```
 DIGI EXECUTION **********
Hit array contains 56 hits
PndEmcMakeCluster, event: 81
********** PndEmcMakeBump, event: 81 **********
 Digi at (250, 262) was a local max. Energy = 0.822928
 Digi at (248, 281) was a local max. Energy = 0.260981
 Digi at (234, 249) was a local max. Energy = 0.507599
EMC header: fired crystals= 56, digi= 31, Total energy= 2.13144 [GeV], Reconstru
cted clusters= 4, Total energy in clusters= 2.10211 [GeV]
-I- PndSttTrackFinderIdeal: all 114, acc. 1, rec. 1
-I- PndSttMatchTracks: rec. 1, quota 100 %
FIT xy **********
hitcounter: 8
Error in <TDecompLU::DecomposeLUCrout>: matrix is singular
-E- pre prefit FAILED 0 24.8538
-I- PndSttHelixHitProducer: 0 track 8 SttHits, 8 HelixHits created.
---------------------------------------
```

This is followed by fitter exceptions and errors in the Kalman task:

```
FitterException thrown with excString:
findpca failure
in line: 354 in file: /home/cleitold/pandaroot/fairsoft/trunk/trackrep/GeaneTrac
kRep.cxx
with fatal flag 0
FitterException Info Output
  *** S/R ERPROP   IERR =    2


    *** Error in subr. TRPROP   2  called bysubr. ERPROP
```

And then I end up with a tcands.root that does not contain a cbmsim tree. The problem occurs as soon as I do a simulation with about 80 to 100 events, even though it might not occur every time I run the simulation, so I suspect there might be a certain per-event probability for it.

Any ideas how to get rid of that kind of problems?

Thanks
Christian

Subject: Re: Simulation crashes after "singular matrix" in digitization macro

Posted by StefanoSpataro on Fri, 04 Sep 2009 12:45:58 GMT
View Forum Message <> Reply to Message

Can you please write the whole error message?

Subject: Re: Simulation crashes after "singular matrix" in digitization macro
Posted by Christian Leitold on Fri, 04 Sep 2009 12:57:57 GMT
View Forum Message <> Reply to Message

Alright, I have attached all the log files to this message. You might notice the out-of-bond errors in the sim log, but this error also occurs in successful simulation runs, not only in those which crash.

File Attachments
1) 1-sim.log, downloaded 506 times
2) 2-digi.log, downloaded 494 times
3) 3-reco.log, downloaded 487 times
4) 4-kalman.log, downloaded 510 times
5) 5-microwriter.log, downloaded 533 times

Subject: Re: Simulation crashes after "singular matrix" in digitization macro
Posted by StefanoSpataro on Fri, 04 Sep 2009 13:30:56 GMT
View Forum Message <> Reply to Message

Do you have tracks in the fit file (after kalman)?

Subject: Re: Simulation crashes after "singular matrix" in digitization macro
Posted by Christian Leitold on Fri, 04 Sep 2009 13:37:30 GMT
View Forum Message <> Reply to Message

Well, there is a LheGenTrack branch in the fit file (attached).

File Attachments
1) fit_sttcombi.root, downloaded 536 times

Subject: Re: Simulation crashes after "singular matrix" in digitization macro
Posted by StefanoSpataro on Fri, 04 Sep 2009 13:41:43 GMT
View Forum Message <> Reply to Message

Then the problem is that makeCand is trying to take information from LheGenTrack, even if it does not know how to do it.

I have sayd that LheGenTrack works with the new code, while makecand works with the good. At the moment you cannot use makeCand together with LheGentrack... you should go back to the svn release of the tutorial, you cannot use makeCand with the newest version before Klaus does fix it.

Subject: Re: Simulation crashes after "singular matrix" in digitization macro
Posted by Christian Leitold on Fri, 04 Sep 2009 14:10:26 GMT
View Forum Message <> Reply to Message

Ok, I went back to the revision 5813 from the tutorial. The original reco macro uses PndTpcLheTrackFinder/Fitter, even though we have STT instead of TPC here. If I turn that off, the Kalman task fails in finding the track array, and does not initialize. So, should I just keep using the PndTpcLheTrackFinder/Fitter?

Subject: Re: Simulation crashes after "singular matrix" in digitization macro
Posted by StefanoSpataro on Fri, 04 Sep 2009 14:46:46 GMT
View Forum Message <> Reply to Message

In theory the kalman should work also with the old code. What is going wrong there?

Subject: Re: Simulation crashes after "singular matrix" in digitization macro
Posted by Bertram Kopf on Fri, 04 Sep 2009 15:05:01 GMT
View Forum Message <> Reply to Message

Hi,

Stefano Spataro wrote on Fri, 04 September 2009 16:46In theory the kalman should work also with the old code. What is going wrong there?

There was already a discussion about this or a similar crash with the tutorial revision. It is probably helpful to look at the threads:
http://forum.gsi.de/index.php?t=tree&th=2535&start=0&rid=0&S=5c35e1ea3b0a3b4d2958aa245cc31420#page_top

and

http://forum.gsi.de/index.php?t=tree&th=2540&start=0&rid=0&S=5c35e1ea3b0a3b4d2958aa245cc31420

Cheers,
Bertram.

Subject: Re: Simulation crashes after "singular matrix" in digitization macro
Posted by StefanoSpataro on Fri, 04 Sep 2009 15:10:14 GMT
View Forum Message <> Reply to Message

The first problem was coming from using a too new version of svn, and the solution was to sue the tutorial svn version.
I suppose the same solution applies to the 2nd thread, considering that was referrinf to a more recent svn version.

Subject: Re: Simulation crashes after "singular matrix" in digitization macro
Posted by Bertram Kopf on Fri, 04 Sep 2009 15:21:01 GMT
View Forum Message <> Reply to Message

Hi Stefano,

Stefano Spataro wrote on Fri, 04 September 2009 17:10The first problem was coming from using a too new version of svn, and the solution was to sue the tutorial svn version.
I suppose the same solution applies to the 2nd thread, considering that was referrinf to a more recent svn version.

no, by going back to the tutorial revision the application crashed too. See:
http://forum.gsi.de/index.php?t=tree&goto=9199&rid=431&S=5c3
5e1ea3b0a3b4d2958aa245cc31420#msg_9199

Cheers,
Bertram.

Subject: Re: Simulation crashes after "singular matrix" in digitization macro
Posted by StefanoSpataro on Fri, 04 Sep 2009 15:23:11 GMT
View Forum Message <> Reply to Message

Then I don't know,
maybe Klaus could help, I have no diea on what is inside the tutorials macro, I knwo only the tracking code.
Sorry.

Subject: Re: Simulation crashes after "singular matrix" in digitization macro
Posted by Christian Leitold on Fri, 04 Sep 2009 15:37:37 GMT
View Forum Message <> Reply to Message

The problem with the old code was, that there the classes used in the macro were PndTpcLheTrackFinder/Fitter. So my concern was, that this were the "wrong" ones since we are using STT here, ...

Subject: Re: Simulation crashes after "singular matrix" in digitization macro
Posted by StefanoSpataro on Fri, 04 Sep 2009 16:45:40 GMT
View Forum Message <> Reply to Message

PndTpcLheTrack fitter is just the name of the class, but it works also for STT. What is important is to use the correct setup in the PndLheHitsMaker (SetSttMore(3), SetTpcMode(0)).

Subject: Re: Simulation crashes after "singular matrix" in digitization macro
Posted by Christian Leitold on Mon, 07 Sep 2009 07:11:43 GMT
View Forum Message <> Reply to Message

Stefano Spataro wrote on Fri, 04 September 2009 18:45PndTpcLheTrack fitter is just the name of the class, but it works also for STT. What is important is to use the correct setup in the PndLheHitsMaker (SetSttMore(3), SetTpcMode(0)).
OK, then everything is set correctly here.

Subject: Re: Simulation crashes after "singular matrix" in digitization macro
Posted by Klaus Götzen on Mon, 07 Sep 2009 09:04:19 GMT
View Forum Message <> Reply to Message

Hi,

I'm working on the necessary changes to the tutorials and rho to get it running in the newer revisions and hope to check in something to trunk tomorrow latest (cause I'll be away for a week then).

Don't know whether the crashes are related to wrong tutorial macros or rho, but I plan to get at least Fast Sim running to check the analysis part.

For the configuration of the detector modules I'm unfortunately no expert...

Cheers,

Klaus
