Subject: Event filter II
Posted by donghee on Mon, 10 Nov 2014 06:48:28 GMT
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Hi Martin,

I am not trying to sort events for pi+pi- or pi+pi-pi0 at DPM

I tried with below to get pi+pi-
Quote:
```
FairEvtFilterOnSingleParticleCounts* fil= new FairEvtFilterOnSingleParticleCounts("fil");
fil->AndMinMaxPdgCodes(1,1,211,-211);
primGen->AndFilter(fil);
```

Bet in the MCinfo the inital particles are not only pi+pi- as I expected.
pi+pi- plus some extras are in the entry. That means that the concept is wrong for pi+pi- selection.

Therefore I tried to do with one more constrain.
Quote:
```
FairEvtFilterOnSingleParticleCounts* fil= new FairEvtFilterOnSingleParticleCounts("fil");
fil->AndMinMaxPdgCodes(1,1,211,-211);
fil->AndMaxAllParticles(2);
primGen->AndFilter(fil);
```

I used maximum allowed particles as 2, but unfortunately happens the crash with following message
Quote:
```
==========================================================
#5  0x00002b86e240184e in TDatabasePDG::GetParticle(int) const ()
   from /cvmfs/fairroot.gsi.de/fairsoft/apr13/lib/root/libEG.so
#6  0x00002b86ea00a624 in FairEvtFilter::GetCharge (this=0x1af0780,
    inPdgCode=211, pdgCodeCharge=0x7fffa99d6870)
    at  /hera/panda/donghee/pandaroot/pandaroot_oct14/pgenerators/eventFilter/Fa
irEvtFilter.cxx:64
#7  0x00002b86ea00daf8 in FairEvtFilterOnSingleParticleCounts::CountCharge (
    this=0x1af0780, particle=0xce27f00)
    at  /hera/panda/donghee/pandaroot/pandaroot_oct14/pgenerators/eventFilter/Fa
irEvtFilterOnSinglePa
rticleCounts.cxx:524
#8  0x00002b86ea00e002 in FairEvtFilterOnSingleParticleCounts::EventMatches (
    this=0x1af0780, evtNr=1)
    at  /hera/panda/donghee/pandaroot/pandaroot_oct14/pgenerators/eventFilter/Fa
irEvtFilterOnSinglePa
rticleCounts.cxx:612
#9  0x00002b86ea00758c in FairFilteredPrimaryGenerator::GenerateEvent (
    this=0x1ae2d70, pStack=0x5804450)
    at  /hera/panda/donghee/pandaroot/pandaroot_oct14/pgenerators/eventFilter/Fa
irFilteredPrimaryGene
rator.cxx:187
```

```
#10 0x00002b86e513d5a1 in FairMCApplication::GeneratePrimaries (this=0x1b3d010)
    at  /hera/panda/donghee/pandaroot/pandaroot_oct14/base/sim/FairMCApplication .cxx:792
#11 0x00002b86ea7aabf3 in g3trig_ ()
   from /cvmfs/fairroot.gsi.de/fairsoft/apr13/lib/libgeant321.so
#12 0x00002b86eaaf7e4c in TGeant3::ProcessRun(int) ()
   from /cvmfs/fairroot.gsi.de/fairsoft/apr13/lib/libgeant321.so
#13 0x00002b86e513a8f0 in FairMCApplication::RunMC (this=0x1b3d010,
    nofEvents=1000)
    at  /hera/panda/donghee/pandaroot/pandaroot_oct14/base/sim/FairMCApplication .cxx:246
#14 0x00002b86e512aed0 in FairRunSim::Run (this=0x17dbf10, NEvents=1000,
    NotUsed=0)
    at  /hera/panda/donghee/pandaroot/pandaroot_oct14/base/steer/FairRunSim.cxx: 372
==========================================================
```

Do you have an idea or simple solution to aviod this problem?
Best wishes,
Donghee

Subject: Re: Event filter II
Posted by MartinJGaluska on Mon, 10 Nov 2014 09:58:50 GMT
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Good morning Donghee,

thanks for reporting the crash. It occured in the code that finds the charge for a certain pdg code. I will have to look into the problem as this code was definitely working when I last tested the event filter code.

The first issue you reported is a misconception of what the following code does.
Quote:

```
FairEvtFilterOnSingleParticleCounts* fil= new FairEvtFilterOnSingleParticleCounts("fil");
fil->AndMinMaxPdgCodes(1,1,211,-211);
primGen->AndFilter(fil);
```

Please have a look at the tutorial (section "Pdg Codes") or the comments inside the source code.

```
//////////////////
71      // User interfaces -- Pdg Code Min and Max
72      //////////////////
73      // Use this for grouping up to 8 pdgCodes into 1 groupId
74      // all particles belonging to the groupId are regarded as being indistinguishable
75      // min defines how many particles you want in your events AT LEAST
76      // max defines how many particles you want in your events AT MOST
77      // the min and max numbers are used for all particles with one of the above pdgCodes
78      // returns kTRUE if the filter was added, otherwise returns kFALSE
```

```
79        Bool_t AndMinMaxPdgCodes( Int_t min, Int_t max, Int_t pdgCode1, Int_t
pdgCode2=kInvalidPdgCode, Int_t pdgCode3=kInvalidPdgCode, Int_t
pdgCode4=kInvalidPdgCode, Int_t pdgCode5=kInvalidPdgCode, Int_t
pdgCode6=kInvalidPdgCode, Int_t pdgCode7=kInvalidPdgCode, Int_t
pdgCode8=kInvalidPdgCode );
80
```

In short your code is asking that exactly one (pi- OR pi+) is present in the events. Nothing else.

The second suggestion is a bit more correct as you also ask for exactly 2 particles to be present in the events, but it is still not what you want. Here is the code that should do what you ask for:

```
FairEvtFilterOnSingleParticleCounts* fil= new FairEvtFilterOnSingleParticleCounts("fil");
fil->AndMinMaxPdgCodes(1,1,211); // exactly one pi+ in primary particles
fil->AndMinMaxPdgCodes(1,1,-211); // exactly one pi- in primary particles
fil->AndMinMaxAllParticles(2,2); // exactly 2 primary particles in event
primGen->AndFilter(fil);
```

I assume that will also lead to a crash as long as I have not fixed the issue in FairEvtFilter::GetCharge.

Kind regards,
Martin

Subject: Re: Event filter II
Posted by MartinJGaluska on Mon, 10 Nov 2014 12:59:58 GMT
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I have found the problem and fixed it in trunk.

I will ask Stefano to apply the patch in the release.

Kind regards,
Martin

Subject: Re: Event filter II
Posted by StefanoSpataro on Mon, 10 Nov 2014 13:42:11 GMT
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Fixed also in the oct13 release.

Subject: Re: Event filter II
Posted by Elisabetta Prencipe (2) on Mon, 10 Nov 2014 22:50:43 GMT
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Hello Martin,

I am trying to use the new version of the EvtFilter. I did an update to the trunk rev-25545 just today.
What happens is that if I run n_event>1000 (simulation with DPM), at the level of the digitization a crash occurs.
In general , we used to run n = 2500 per job, and if never created trouble.

The problem looks it occurs with FairEvtFilterOnSingleParticleCounts::Streamer.

Here attached is my sim_complete.C and the dec file. Could you please try to reproduce my problem, and fix it?

Thank you very much for your help!

Elisabetta

File Attachments
1) sim_complete.C, downloaded 500 times
2) DPM2317.dec, downloaded 516 times

Subject: Re: Event filter II
Posted by Elisabetta Prencipe (2) on Mon, 10 Nov 2014 23:45:58 GMT
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Hi again,

I fogot to mention:

I tried also with the new rel-oct14. I get the error in the sim process:

Error: Can't call FairPrimaryGenerator::AndFilter(mmInvDsm) in current scope
sim_complete.C:192:
Possible candidates are...
(in FairPrimaryGenerator)
*** Interpreter error recovered ***

that happens in the line where in the macro is called "AndFilter":

```
// logically combine event filters
primGen->AndFilter(mmInvDsm);
primGen->AndFilter(mmInvDsp);
```

what did it chnange compared to the trunk rev-25545?

Thanks Elisabetta

Subject: Re: Event filter II
Posted by MartinJGaluska on Tue, 11 Nov 2014 08:21:46 GMT
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Hello Elisabetta,

answering your second post first: I was asked to move all the event filter related code of FairPrimaryGenerator to its own class which I called FairFilteredPrimaryGenerator. FairFilteredPrimaryGenerator can be used with and without event filtering as it just adds code to FairPrimaryGenerator.

Therefore please try using

FairFilteredPrimaryGenerator* primGen = new FairFilteredPrimaryGenerator();

instead of

FairPrimaryGenerator* primGen = new FairPrimaryGenerator();

as explained here.

Does that also "fix" the problem you described in your first post?

Kind regards,
Martin

Subject: Re: Event filter II
Posted by Elisabetta Prencipe (2) on Tue, 11 Nov 2014 08:27:33 GMT
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Hi Martin,

it lookes that in the release oct13 I do not get any more troubles with the digi macro, now.

Thank you for your help and suggestion,

Elisabetta