
Subject: GEANE on 64bit Ubuntu 9.04

Posted by [Anonymous Poster](#) on Tue, 05 May 2009 08:24:38 GMT

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Hi everybody,

I just reinstalled my Desktop machine with a 64bit linux (with gfortran 4.3). Geane extrpolations dont work. All I get is output like this:

Position : (0.19, 20, 2.2)

Slopes : $dx/dz = 8.9e-08$, $dy/dz = -9.1e-07$

$q/p = 0.96$

Propagate in flight direction

*** S/R ERPROP IERR = 4

*** Error in subr. TRPROP 4 called bysubr. ERPROP

*** S/R ERPROP IERR = 4

*** Error in subr. TRPROP 4 called bysubr. ERPROP

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*** S/R ERPROP IERR = 4

*** Error in subr. TRPROP 4 called bysubr. ERPROP

Well and it goes on like that. Is this a known issue? What is due to and is it fixable? I guess our core software needs to run on 64bit for sure.

Cheers, Christian

Subject: Re: GEANE on 64bit Ubuntu 9.04

Posted by [StefanoSpataro](#) on Tue, 05 May 2009 08:34:31 GMT

I have many errors of this kind even on 32bit machines, mainly depending on the kind of analysed events.

I have supposed it was a feature and not a bug.

Do you have only errors on 64bit machines, or are you able to obtain somehow satisfactory results?

Subject: Re: GEANE on 64bit Ubuntu 9.04

Posted by [Anonymous Poster](#) on Tue, 05 May 2009 08:38:34 GMT

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Hi,

no, if you have these errors all the time, I believe that you can not have any sensible results. It is a kind of badly handled failed propagation. With the new interface to Geane we could catch these failures now in FairGeanePro, right Lia?

I don't see these errors in genfit in 32bit. But they can be there, I guess. Could you try to isolate in which cases it happens (low momenta, some special track angles,)?

Cheers, Christian

Subject: Re: GEANE on 64bit Ubuntu 9.04

Posted by [Alberto Rotondi](#) on Wed, 06 May 2009 17:16:37 GMT

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Dear Christian,

the warning comes from the routine TRPRFN, we do not use TRPROP because we have the flag E (Exact tracking) in the interface. ERPROP uses the same message both for TRPROP and TRPFN. In this routine eqs. A1-A20 from Strandlie and Wittek, NIM A 566(2006)687 are coded and calculated.

These formulae refer to the propagation of the error matrix from one transverse (SC) system to another during tracking.

Some of these formulae become singular when $\cos \lambda$ (dip angle) is equal to zero, because it appears on the denominator.

This happens when the particle is exactly along the z-axis of the Master system, because in this case the ϕ angle is undefined. Since the equations are meaningful also for very small $\cos \lambda$ values, in GENAE only the conditions $\cos \lambda = 0$ EXACTLY is flagged and no actions are triggered, apart from the printed message.

In this case perhaps one could set to zero all the derivatives involving ϕ in the jacobian and skip the message.

A lot of messages of this type could happen when you send the particles exactly along the z-axis. In all the other cases this should happen very rarely! Even more strange is the dependence of the error on the 32-64 bit configuration.

Therefore, to understand better what's going on, I would ask:

- 1) do you send particles along the Z- axis in your generator?
- 2) what is the percentage of messages you have on the whole in a typical production?
- 3) In a 32 bit configuration you have few messages. Are the result reliable with no artifacts?

Thank you in advance
Alberto

Subject: Re: GEANE on 64bit Ubuntu 9.04
Posted by [Lia Lavezzi](#) on Tue, 12 May 2009 10:55:39 GMT
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Hi Christian,
just to understand if we have to investigate the problem: have you been able to see GEANE working fine on the 64 bit machine too or is the problem still there?
Ciao,
Lia.

Subject: Re: GEANE on 64bit Ubuntu 9.04
Posted by [Anonymous Poster](#) on Wed, 13 May 2009 12:08:49 GMT
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Hi,

I don't have any serious experience with GEANE on 64bit. The thing I posted before was my only experience. Whether you need to investigate: Well, if you have a 64bit system in Pavia, I think it would be good to test it. I think in the future that will become important.

Cheers, Christian

Subject: Re: GEANE on 64bit Ubuntu 9.04
Posted by [Lia Lavezzi](#) on Wed, 13 May 2009 13:50:23 GMT
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Hi,

I will make some tests: can you please tell me which macros did you use to see the TRPROP 4 errors? Or, at least, which kind of events do you generate (single track? Momentum? Particle direction?)...

Thank you,
Lia.

Subject: Re: GEANE on 64bit Ubuntu 9.04
Posted by [Anonymous Poster](#) on Wed, 13 May 2009 14:38:10 GMT
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Hi,

I did the same stuff as I set up for you in our GEANE debugging thread, just repeat it from there. And this is single tracks.

Cheers, Christian
