
Subject: VERTIGO

Posted by [mitaroff](#) on Mon, 15 Mar 2004 11:23:52 GMT

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Proposal for a detector-independent vertex reconstruction toolkit (VERTIGO):

http://wwwhephy.oeaw.ac.at/u3w/m/mitaroff/www/LC_WS/3rdTalk.pdf

Subject: Re: VERTIGO

Posted by [NormanGraf](#) on Wed, 31 Mar 2004 01:56:37 GMT

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Sounds interesting. Does any of the code exist outside of the CMS framework? If so, how tightly is it coupled to ROOT?

Subject: Re: VERTIGO

Posted by [walten](#) on Fri, 16 Apr 2004 15:30:58 GMT

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It does not yet exist outside CMS. That's the AIM of the Vertigo project - to rip the code out of CMS. Root dependency is zero.

Subject: Re: VERTIGO

Posted by [mitaroff](#) on Fri, 16 Apr 2004 17:04:52 GMT

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I shall present aims and status of the VERTIGO project at LCWS'04 next week in Paris (Simulation session, Tue 20 April). You may find a copy of my draft presentation file at

http://wwwhephy.oeaw.ac.at/u3w/m/mitaroff/www/LC_WS/4thTalk.pdf

Cheers, Winfried

Subject: Re: VERTIGO

Posted by [mitaroff](#) on Wed, 29 Dec 2004 16:35:46 GMT

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A short summary of the VERTIGO project is included in the Proceedings of LCWS'04 (Paris). A preprint can be found in the LC Notes Repository at "<http://www-flc.desy.de/lcnotes/notes/LC-TOOL-2004-017.pdf>".

VERTIGO was also presented as a poster at CHEP'04 (Interlaken, CH). A longer summary will appear in the Proceedings. The preprint can be downloaded from "<http://indico.cern.ch/getFile.py/access?contribId=31&sessionId=24&resId=1&materialId=paper&confId=0>".

An updated and extended presentation of the VERTIGO project was given at the Rutherford Lab on 6 Sept 2004. My slides are available at "http://wwwhephy.oeaw.ac.at/u3w/m/mitaroff/www/LC_WS/6thTalk.pdf".

Best wishes for a Happy New Year 2005 !
Cheers, Winfried

Subject: Examples in JAS3
Posted by [wpark](#) on Tue, 30 Aug 2005 20:45:40 GMT
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Dear all,

Back to the office from Snowmass05, I am working on installing JAS3v0.8.2 in my office desktop. I couldn't find out a nice java example code, Analysis101.java in JAS3 -> Help -> Examples.
Even Norman told me that he would post his nice Higgs finding java program here. I wonder what happened. Please, let me know if you know something about this.

Cheers, Woochun

Subject: Re: Examples in JAS3
Posted by [wpark](#) on Tue, 30 Aug 2005 20:53:15 GMT
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It's my fault. After doing plugin, I found org.lcsim example java codes.
But, still I don't get Norman's great example code there.

Thanks.

Subject: Re: Examples in JAS3

Posted by [NormanGraf](#) on Wed, 31 Aug 2005 00:40:30 GMT

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Hello Wochun,

The examples which ship with JAS and the org.lcsim plugin are meant to be quite generic. We are still working on a mechanism to distribute more specialized analysis examples which depend on specific input (such as the Higgs recoil example).

Norman

Subject: Jet finder in JAS3

Posted by [adloff](#) on Tue, 13 Sep 2005 10:02:03 GMT

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Dear Jan, dear all,

I am starting with Java code and I have found your code to create a driver using JAS3(
<http://confluence.slac.stanford.edu/display/ilc/Creating+a+D+river+using+JAS3>).

Now I would like to know more than the number of jets found by the JadeEJetFinder. But I am facing a problem because the jet list is a List<List<MCParticle>>.

I can get the number of particles in a jet but I cannot access there energy.

I have attached my code. Could have a look and indicate me whether there is an other way to access the energy of the particles in a jet?

Many thanks in advance.

Regards,
Catherine

File Attachments

1) [GetJetInfo.java](#), downloaded 790 times

Subject: Re: Jet finder in JAS3

Posted by [tonyj](#) on Tue, 13 Sep 2005 12:39:16 GMT
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Hi Catherine, Jan,

you might want to take a look at the jet finder I put in org.lcsim as org.lcsim.event.util.JetDriver. This would solve Catherine's problem, since it creates a ReconstructedParticle representing each Jet, from which you can easily get the jet energy, with child reconstructed particles representing the particles in the jet.

This JetFinder takes ReconstructedParticles as input, so to use it as Catherine is using Jan's jet finder you would need to convert the MCParticles into ReconstructedParticles. This could be done using either the fast MC, or an (as yet unwritten) particle cheater.

Tony

Subject: Fit a histogram within JAS3
Posted by [karyotak](#) on Tue, 27 Sep 2005 15:46:31 GMT
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How can we fit a histogram within JAS3 at the end of an analysis with a Gauss function for example ?

When I right click on it then the Fit option is not accessible. It stays gray

Yannis

Subject: Re: Fit a histogram within JAS3
Posted by [NormanGraf](#) on Tue, 27 Sep 2005 16:03:40 GMT
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Hello Yannis,

You have to first add a function (right-click, "Add function"), after which fitting is enabled. If you have added more than one function you can then select from the list.

Norman

Subject: Re: VERTIGO

Posted by [mitaroff](#) on Mon, 24 Jul 2006 12:46:38 GMT

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The CHEP'04 Proceedings final version can be downloaded from [here](#) .

For updated information, please, have a look at the new thread RAVE/VERTIGO.

Cheers, Winfried

Subject: RAVE / VERTIGO

Posted by [mitaroff](#) on Mon, 24 Jul 2006 13:23:21 GMT

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Vienna's VERTIGO project, which was stalled in 2005, has been re-launched. It encompasses the vertex reconstruction toolkit proper (RAVE), and a stand-alone framework (VERTIGO). Leading developer is Wolfgang Waltenberger (walten@hephy.oeaw.ac.at).

Recent status reports and plans for the future have been presented (a) at the ILC Software Meeting last April in Cambridge; Wolfgang's slides can be downloaded from [here](#) , and (b) at the 3rd SiLC Collaboration Meeting last June in Liverpool; my slides can be downloaded from [here](#) .

Latest addition to VERTIGO is an "LCIO_Event Generator" for input of LDC simulated tracks fitted by MarlinReco (at present only available in BRAHMS/TANAGRA representation). First checks on reconstructed primary vertices (without outlier removal) yield sigmas in x and y of about 5 microns ...

A beta release of all code can be found in our subversion repository at <http://www.teilchen.at:8080/websvn/>.

The package will officially be presented and hopefully released by Wolfgang at the next ILC Software Meeting in September.

Cheers, Winfried

Subject: Particle ID in JAS3

Posted by [bjasper](#) on Fri, 08 Jun 2007 05:18:03 GMT

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JAS3 seems to have a problem with identifying supersymmetric particles. If I have neutralinos in an event(PDGID 100022), JAS3 names them charginos by mistake. The properties seem to be correct, just the name is wrong I believe.

Subject: Re: Particle ID in JAS3
Posted by [tonyj](#) on Fri, 08 Jun 2007 16:43:22 GMT
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Hi, the table which JAS uses is part of the freehep-physics package. You can see it here:

<http://java.freehep.org/svn/showfile.svn?path=%2ffreehep%2frunk%2fhep%2ffreehep-physics%2fsrc%2fmain%2fjava%2fhep%2fphysics%2fparticle%2fproperties%2fDefaultParticlePropertyProvider.java&revision=HEAD>

You are right that 100022 is called a chargino even though it has 0 charge. If you have time to look at the table, particularly the SUSY particles and suggest improvements that would be great.

Tony

Subject: Re: Particle ID in JAS3
Posted by [bjasper](#) on Sun, 10 Jun 2007 05:04:33 GMT
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I recommend the following changes. Note, I have only renamed the neutral particles, nothing else.

```
167: // charginos
168:
169: PART("neut10", "neut10_bar", 1000022, 0,0, 100.*GeV, 0. );
170: PART("neut20", "neut20_bar", 1000023, 0,0, 100.*GeV, 0 );
171: PART("charg1+", "charg1-", 1000024, 0, 1, 100.*GeV, 0 );
172: PART("neut30", "neut30_bar", 1000025, 0,0, 100.*GeV, 0 );
173: PART("zino2", "zino2_bar", 1000032, 0, 0, 0, 0);
174: PART("zino3", "zino3_bar", 1000033, 0, 0, 0, 0);
175: PART("wino2", "wino2_bar", 1000034, 0, 0, 0, 0);
176: PART("zino4", "zino4_bar", 1000056, 0, 0, 0, 0);//double check
177: PART("neut40", "neut40_bar", 1000035, 0,0, 100.*GeV, 0 );
178: PART("charg2+", "charg2-", 1000037, 0,1, 100.*GeV, 0 );
```

Subject: Re: Particle ID in JAS3
Posted by [tonyj](#) on Sun, 10 Jun 2007 16:01:17 GMT
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Thanks, I have made these changes, they will be in the 0.8.4 release of JAS.

Subject: Re: RAVE / VERTIGO
Posted by [jfstrube](#) on Sun, 24 Jun 2007 19:04:56 GMT
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In order to facilitate the use of RAVE within the org.lcsim reconstruction framework, installation instructions have been posted.
If you are interested in using Rave within org.lcsim, you are encouraged to follow the instructions and leave comments and questions on that page.

Subject: making jas / wired aware of custom lccd geometry file
Posted by [wenzel](#) on Tue, 26 Jun 2007 19:33:55 GMT
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Hi

I created my own custom geometry file for a test beam calorimeter similar to the ecal.lccd file in:
<https://confluence.slac.stanford.edu/display/ilc/SLIC-LCDD+Tutorial>

How do I get jas/wired to pick up this new lccd file?

thanks in advance

hans

Subject: Re: making jas / wired aware of custom lccd geometry file
Posted by [tonyj](#) on Tue, 26 Jun 2007 20:56:23 GMT
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Hi Hans, the simple answer is that currently JAS3/Wired cannot read LCDD files. Currently it can read either compact geometry files (from which we normally build our LCDD files) or HepRep files.

It is possible to use Geant4 to generate a HepRep file, and then to read that HepRep file into JAS3, and then optionally overlay events on the geometry read from the HepRep file. The vis1.mac which comes with the code in the tutorial you reference should show how to do that.

Tony

Subject: Re: making jas / wired aware of custom lcdd geometry file

Posted by [NormanGraf](#) on Wed, 27 Jun 2007 15:52:07 GMT

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Hello Hans,

As Tony mentions, you can use the Geant-generated HEPREP file, but you should be aware that these files can be quite large and detailed. You may want to turn off visualization for volumes which are not needed for the event display.

By the way, were there elements of the detector design which could not be accomodated within the compact description?

Norman

Subject: Re: making jas / wired aware of custom lcdd geometry file

Posted by [wenzel](#) on Wed, 27 Jun 2007 16:32:03 GMT

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Hi

I think we need to describe somewhere how to create a heprep file that contains the geometry only. The example provided with the tutorial produces a heprep file containing a full event.

Concerning the compact description:

Unfortunately I started with the tutorial which doesn't mention the compact geometry so the starting point was the lcdd description.

In addition I am adding an array with optical properties to some of the materials in the gdml section and I am not sure if the GeomConverter can deal with that case. That should be easy to implement but I didn't have time to look into that yet. Using the compact description would make life definitely much easier.

hans

Subject: Re: making jas / wired aware of custom lcmd geometry file
Posted by [NormanGraf](#) on Wed, 27 Jun 2007 17:13:27 GMT
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These commands will dump a HepRep of the Geant4 geometry.

```
/vis/scene/create  
/vis/scene/add/volume  
/vis/open HepRepXML  
/vis/viewer/flush
```

Subject: JAS3 bug ?
Posted by [mitaroff](#) on Thu, 12 Jul 2007 17:47:51 GMT
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We get a run-time error with current JAS3 v0.8.3 build 1686 (Feb 1, 2007), which we didn't encounter with older JAS3 v0.8.3 build 1643 (April 5, 2006). This is the code and the error message:

```
-----  
import hep.aida.*;  
public class Test2 {  
    public static void main( String args[] ) {  
        IAnalysisFactory af = IAnalysisFactory.create();  
        ITree tree = af.createTreeFactory().create();  
        IFunctionFactory funf = af.createFunctionFactory( tree );  
        String titfun = "[ y = a + b|x ]";  
        IFunction invx = funf.createFunctionFromScript( titfun, 1, "a+b/x[0]", "a,b", "", null );  
    }  
}
```

```
-----  
java.lang.NumberFormatException: For input string: "a+b/x[0]"  
    at java.lang.NumberFormatException.forInputString(NumberFormatException.java:48)  
    at java.lang.Integer.parseInt(Integer.java:447)
```

```
at java.lang.Integer.parseInt(Integer.java:497)
at hep.aida.ref.function.FunctionCreator.createFromCodelet(FunctionCreator.java:81)
at hep.aida.ref.function.FunctionFactory.createFunctionFromScript(FunctionFactory.java:104)
at org.freehep.jas.extension.aida.function.JAS3FunctionFactory.
createFunctionFromScript(JAS3FunctionFactory.java:30)
at Test2.main(Test2.java:8)
at sun.reflect.NativeMethodAccessorImpl.invoke0(Native Method)
at sun.reflect.NativeMethodAccessorImpl.invoke(NativeMethodAccessorImpl.java:39)
at sun.reflect.DelegatingMethodAccessorImpl.invoke(DelegatingMethodAccessorImpl.java:25)
at java.lang.reflect.Method.invoke(Method.java:585)
at org.freehep.jas.extension.compiler.JASClassManager$1.run(JASClassManager.java:231)
```

Winfried Mitaroff
(HEPHY Vienna)

Subject: Re: JAS3 bug ?
Posted by [tonyj](#) on Fri, 13 Jul 2007 19:00:25 GMT
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Hi,
This is a bug in our JAIDA implementation, currently the "description" argument of the IFunctionFactory method

```
createFunctionFromScript(String path, int dim,
                        String valexpr,
                        String parameters,
                        String description,
                        String gradexpr)
```

can not be an empty string. This bug will be fixed in the next release, but for now please use anything but "". May I suggest something like: "hyperbola", or " a+b/x[0]", or "My Function"

-Victor

Subject: bug in FastMC in org.lcsim
Posted by [kutschke](#) on Tue, 02 Oct 2007 00:18:33 GMT
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Hi All,

I am having trouble running the fastMC in org.lcsim.
Here is my code, derived from the org.lcsim examples in
JAS3

```
import org.lcsim.mc.fast.MCFast;
import org.lcsim.util.Driver;
import org.lcsim.event.EventHeader;

public class FastMC extends Driver
{
    public FastMC()
    {
        Driver fast = new MCFast();
        fast.setHistogramLevel(HLEVEL_NORMAL);
        add(fast);
    }

    public void process(EventHeader event){
        super.process(event);
    }
}
```

Below is the error message that it generates.

It looks to me as if the code is not finding the file that holds
the smearing information. Is that right? Do I need to tell org.lcsim where to find the file that holds
the smearing information? If so, how do I do that? Do I need to supply
the file myself - I have one from Bruce but don't know what
to do with it.

Thanks,

Rob

Here is the error message:

```
java.lang.IllegalArgumentException: Missing value for TanLambdaErrorScale
    at org.lcsim.conditions.ConditionsSetImplementation.getDouble(Con
onditionsSetImplementation.java:49)
```

```
at org.lcsim.mc.fast.tracking.SimpleTables.<init>(SimpleTables.java:26)
at org.lcsim.mc.fast.tracking.MCFastTracking.process(MCFastTracking.java:109)
at org.lcsim.util.Driver.doProcess(Driver.java:273)
at org.lcsim.util.Driver.processChildren(Driver.java:284)
at org.lcsim.util.Driver.process(Driver.java:198)
at org.lcsim.util.Driver.doProcess(Driver.java:273)
at org.lcsim.util.Driver.processChildren(Driver.java:284)
at org.lcsim.util.Driver.process(Driver.java:198)
at FastMC.process(FastMC.java:15)
at org.lcsim.util.DriverAdapter.recordSupplied(DriverAdapter.java:74)
at org.freehep.jas.extensions.recordloop.MyChain.recordSupplied(MyChain.java:55)
at org.freehep.jas.extensions.recordloop.InteractiveRecordLoop.
supplyRecord(InteractiveRecordLoop.java:533)
at org.freehep.jas.extensions.recordloop.RecordLoopManager.run(
RecordLoopManager.java:66)
at java.lang.Thread.run(Thread.java:595)
```

Subject: Re: bug in FastMC in org.lcsim
Posted by [lima](#) on Tue, 02 Oct 2007 02:31:51 GMT
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Hi Rob,

If you have an appropriate smearing file, you should:

- 1) checkout the LCDetectors package from SLAC cvs
- 2) add your .properties file to the right detector area
- 3) create an alias for your detector to your local detectors area
- 4) try running it again

You can find instructions for step (1) on <http://confluence.slac.stanford.edu/display/ilc/LCDetectors>

For step (3), create (or edit) file `~/.lcsim/alias.properties` with a line containing e.g. for detector `sidaug05_tcmt`:

```
-----
sidaug05_tcmt: file:///your/full/path/to/detectors/sidaug05_tcmt
-----
```

For step (2), you mention you have the right file. If you don't, try searching for the missing property's string in a more complete detector (e.g. sid01). For instance, for the parameter TanLambdaErrorScale:

```
-----  
bash> find ./sid01 | grep properties$ | xargs grep TanLambdaErrorScale  
./sid01/SimpleTrack.properties:TanLambdaErrorScale: 1.000  
(...  
-----
```

this command tells you which property file defines the parameter you are looking for.

Good luck,
Guilherme

Subject: Re: bug in FastMC in org.lcsim
Posted by [kutschke](#) on Tue, 02 Oct 2007 16:17:29 GMT
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Thanks Guilherme,

This solved the technical problem but it has exposed a different problem - but I am not sure to whom I should address that question.

First the resolution of the technical problem:

The information that you pointed me to was enough for me to discover that the geometry files on the web are out of date with respect to the head of cvs, from which I am working.

The solution was to build a new geometry file from the head of cvs and tell org.lcsim to use that version.

```
# go to my private working space  
> cd /local/ILC/lcsim/Releases/071002/  
  
# check out the LCDectors package and make sid01.zip  
> cvs co LCDectors  
> cd LCDectors
```

```
> setenv DETECTOR sid01
> make zip

# tell org.lcsim to use my new sid01 geometry file
> cd ~/.lcsim
> cat > ~/.lcsim/alias.properties
sid01: file:/local/ILC/lcsim/Releases/071002/LCDetectors/detectors/ sid01.zip
## the above is all one line - it wrapped in the editor
```

Then every thing worked.

Now the new problem:

```
> cd /local/ILC/lcsim/Releases/071002
> ls LCDetectors/detectors/sid01/TrackParameters:
CVS
FullBarrelResolutionBc.ini
FullBarrelResolutionNbc.ini
sidaug05_lcdtrk.input
```

These three files are identical to those for the detector sidaug05. In particular sidaug05_lcdtrk.input does not match th sid01.input file that Bruce gave me.

So I presume that I am using the wrong covariance matrices for smearing the tracks.

For now I am just learning to use tools so I can keep making progress while this is fixed.

Rob

Subject: question on The Students' Getting Started Guide
Posted by [nomerot](#) on Thu, 11 Oct 2007 21:54:03 GMT
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hi, I am trying to go through the The Students' Getting Started Guide
[http://confluence.slac.stanford.edu/display/ilc/The+Students %27+Getting+Started+Guide](http://confluence.slac.stanford.edu/display/ilc/The+Students+%27+Getting+Started+Guide)
and I hit a problem. Netbeans complains about

```
aida.cloud1D("nTracks").fill(particles.size());
```

'cannot access hep.aida.lcloud1D
file hep.aida.lcloud1D.class not found'

the Navigator window show 'aida Aida' in 'Members view'

any advice?

another stupid question is how do I save my Analysis103 and how do I open/load it then in JAS3 - this description is quite cryptic at least on this page..

thanks, Andrei

Subject: Re: question on The Students' Getting Started Guide
Posted by [jfstrube](#) on Fri, 12 Oct 2007 00:44:16 GMT
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Hi Andrei,

I'm a bit unsure about why you are trying to compile the code in Netbeans or what that error message refers to, but I am sure that you can get rid of the problem by locating and adding aida.jar to the libraries in the same way you added lcsim.jar.

If you have read the instructions to the end, you are compiling and running the file in JAS3. In order to save the file, right-click on the folder that contains your histograms and select Save As... I suggest to give the file an extension .aida.

I am going to update the instructions on confluence.

Thanks for the feedback.

Subject: Re: question on The Students' Getting Started Guide
Posted by [nomerot](#) on Fri, 12 Oct 2007 15:49:33 GMT
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hi Ian,

thank you for your reply.

I was not trying to compile in Netbeans - as the instructions rightly say:

If you encounter a red underline, it's a sign that Netbeans spots an error in your code.

so I was trying to figure this out. I tried to locate aida.jar as you recommended and it was not in the same place from where I took lcsim.jar (I followed instructions to get lcsim.jar). I am not sure how to look for it otherwise - feel free to send me to relevant reading/links.

I read instructions to the end and I tried to load Analysis103 in JAS3 to compile and to run it but I could not find where Netbeans saved it - hence my second question about how to save properly projects in Netbeans and how to load them then into JAS3. I guess it's related to the setting correctly Class Path in JAS3.

Thanks again for your help - I feel myself a student again indeed!

Best, Andrei

Subject: Re: question on The Students' Getting Started Guide
Posted by [jfstrube](#) on Fri, 12 Oct 2007 16:55:39 GMT
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Hi Andrei,

please tell me the platform that you are using.

The file aida.jar is in the JAS3 installation directory, not in your home directory (Sorry for the misleading information).

For me (in Linux) it's /usr/local/jas3-0.8.4rc1/extensions/, but it depends on where you installed JAS3. The Plugin Manager can help you here:

Select View->Plugin Manager, then select the "Available" tab. You don't have to install any plug-ins, but you should see on the bottom the two locations where to find your .jar files. One should be in your home directory, the other shows the JAS3 installation location. aida.jar can be found in one of the two.

You should not have to set the class path in JAS3 to be able to get this example working.

Try File->Save As... in Netbeans to determine where to save the file Analysis103.java. Then navigate JAS3 to that location. You should not have to set anything else.

Tony: Did you have a chance to look at JAS-435? This would be an example use case.

Subject: Re: question on The Students' Getting Started Guide
Posted by [nomerot](#) on Sat, 13 Oct 2007 06:06:16 GMT
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hi Jan,

I'm using Windows XP. I found aida.jar where you told. Now my code compiles in Netbeans ok.

My Netbeans (5.0) does not have 'Save as'. I will try to install 5.5 again. The reason I rolled back to 5.0 was that I had problems with installation of Mevenide Update Center (NETbeans was not seeing it). I solved it after I reinstalled 5.0.

Anyway after some poking I found my Analysis104.class and loaded it to JAS3. It is shown now in the left window under Programs when I load it (but not in the right window). Now my problem is that I can't compile it - 'Compile' is not highlighted. Analysis101 from Examples works just fine.

thanks for your help.

Best, Andrei

Subject: Re: question on The Students' Getting Started Guide
Posted by [jfstrube](#) on Sat, 13 Oct 2007 07:47:17 GMT
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Hi Andrei,

unfortunately I have neither Netbeans nor WinXP to try, so I am not sure about the Save As..., but it strikes me as odd that an IDE shouldn't have that in its "File" menu.

There seems still to be some confusion. Of course you can't compile a .class file - it is already compiled. I'm glad that Netbeans can compile the file for you, but maybe the instructions were misleading. Netbeans is used only for editing the code. Please load Analysis104.java into JAS3. Then you can compile the code, and you will see it in it's own editor window inside JAS3. Whenever you edit and save the file in Netbeans, JAS3 will notice that the file has changed and ask you to reload.

Note also that the guide is primarily to avoid having to install maven and mevenide. If you only do your analysis inside JAS3 and never have to rebuild org.lcsim, then this is for you. If you have Mevenide working already, then maybe the link under "Further reading" on the bottom of the page is more helpful. It sets up a new project for you without you having to find .jar files at the cost of having to install maven and mevenide.

Anyways, it looks like you are on the right track. Loading the .class file into JAS3 should give you the right results, but you probably want to load the .java file instead.

Apologies for the confusion. I will try to update the page to be more precise.

Subject: Re: question on The Students' Getting Started Guide

Posted by [nomerot](#) on Sat, 13 Oct 2007 09:22:44 GMT

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hi Jan, thanks very much - very helpful! I am happily running now my code.

I see that you modified your page. May be it's worth writing there 'you can open the file Analysis103.java in JAS3' instead of 'you can load the file Analysis103.java into JAS3'
- this was a point of confusion for me.

Best, Andrei

Subject: how to get VtxBarrHits for a particle?

Posted by [nomerot](#) on Sat, 13 Oct 2007 10:52:44 GMT

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hi, two things

1) it looks to me the Analysis101 example loops over the same event twice (histos have double entries for ex) - it's a known bug, isn't it?

2) How can I access VtxBarrHits (or any hits) for a particle from MCParticle? and vice versa if I know VtxBarrHits how can I determine from which particle are they in MCParticle? I would appreciate some examples how to do this.

Best, Andrei

Subject: Re: how to get VtxBarrHits for a particle?
Posted by [kutschke](#) on Sat, 13 Oct 2007 13:05:50 GMT
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Hi Andrei,

This is just my 2 cents worth from a users point of view.

1) I had this problem too. Given the question, I presume that you are running within JAS3 and have done the compile/load/go cycle twice. When you do this, JAS3 does not delete/reset the histograms between runs. There is a way to reset them that I forget because I do not run within jas3. In the worst case, exit and restart jas3.

2) The official example of accessing hits is:
<http://confluence.slac.stanford.edu/display/ilc/Accessing+SimTrackerHit+information>
This gives you access to SimTrackerHits which are intersections of a track with a sensitive volume.

At present there is no standard way to access information about hit strips or clusters. Nick, Tim, Dima and Hans have all done work but it is all in their contrib areas. I have to run now but will send more information later.

Rob

Subject: Re: how to get VtxBarrHits for a particle?
Posted by [nomerot](#) on Sat, 13 Oct 2007 13:19:21 GMT
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hi Rob,

1) you are right - thank you.

2) I think I need a bit more than this example shows. The example gives a list of all hits. I need a list of hits associated with a particular particle.

Best, Andrei

Subject: Re: how to get VtxBarrHits for a particle?
Posted by [kutschke](#) on Sat, 13 Oct 2007 16:45:11 GMT
[View Forum Message](#) <> [Reply to Message](#)

Hi Andrei,

There are several options that I am aware of. As usual, several options is a bad sign...

Lots of people have "tracking cheaters" that do something like you ask. I have used one of these and it did not work properly. I don't know the status of the other codes.

There is a new development. Dima has his virtual segmentation package and Hans has a "cheater" that runs on top of it. These were described at the meeting last Tuesday and I think I recall that you were listening.

Tim Nelson also recently released some code but I have not yet had a chance to look at it.

Below is what I am doing with Dima's and Hans's stuff. Be aware that all of Dima's, Hans' and my code is in the middle of rapid development and may change three times before breakfast. Once it settles down, we will release a stable example.

First, I usually run in "batch" mode, not within jas3. (Here batch just means that I run from the command line.) So example is set up to run that way. For details of "batch" mode, see: <http://confluence.slac.stanford.edu/display/ilc/Running+JAS+Programs+in+Batch+Mode>

My code is in:
sandbox/RobKutschke/HitTests/v1

These are derived from examples provided by Hans and Dima.
You are getting a snapshot in the middle of my learning what information is available.

You will need to edit the main program, Hitloop.java, to specify an input file. This code has been checked on sid00 and sid01 - I don't know how it will behave on other detectors.

My code works on a version of org.lcsim that was checked out on October 6. Yesterday Dima committed some changes. He sent email saying that I need to make the following changes to use the most recent release:

> you only need to replace DigitizationDriver by

> SimToDigiDriver in your code.

I have not yet tried this.

Good luck. Let me know how well this works.

Rob

Subject: Re: how to get VtxBarrHits for a particle?
Posted by [nomerot](#) on Sat, 13 Oct 2007 19:37:20 GMT
[View Forum Message](#) <> [Reply to Message](#)

hi Rob, - thanks! Looks like a lot of useful information but I don't know what is the sandbox - can you please tell me how to get to it from JAS3 or some other way.

Best, Andrei

Subject: Re: how to get VtxBarrHits for a particle?
Posted by [kutschke](#) on Sat, 13 Oct 2007 20:20:47 GMT
[View Forum Message](#) <> [Reply to Message](#)

Hi Andrei,

The sandbox is a section of the cvs repository in which people can put test/example/in-progress code. It is not built as part of the regular release.

To get it you need to check it out of cvs. The cvs instructions are at:

<http://confluence.slac.stanford.edu/display/ilc/Building+org+.lcsim+software>

You will also need to build an up to date release to get Hans' and Dima's code. The jar files on the web are many months old.

The page I pointed you to, above, has instructions on building a release.

Before building a release you may need to know stuff from all 4 bullets under "Installation Instructions" on:
<http://confluence.slac.stanford.edu/display/ilc/lcsim+Tutorials>

(the url above is the 4th bullet on this page).

Sorry that this is not any easier but you are getting an accurate picture of the state of the software.

Rob

Subject: Re: how to get VtxBarrHits for a particle?
Posted by [jfstrube](#) on Sat, 13 Oct 2007 20:22:08 GMT
[View Forum Message](#) <> [Reply to Message](#)

Hi Andrei,

the sandbox is a place for developers to put their code without having to worry about affecting other users. The code in this area is not compiled, and there is no way for you to pick it up from JAS3.

However you can download the whole codebase like this

<http://confluence.slac.stanford.edu/display/ilc/Building+org.lcsim+software>

Subject: Re: how to get VtxBarrHits for a particle?
Posted by [nomerot](#) on Sun, 14 Oct 2007 00:08:20 GMT
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hi Rob, it was not too bad though I still need to figure out what maven does.. Anyway I got to your code and I think this is what I wanted

```
public class TrackerHitCheaterAccessDriver extends Driver {
```

I'll try it tomorrow.

thanks, Andrei

Subject: Re: how to get VtxBarrHits for a particle?
Posted by [nomerot](#) on Sun, 14 Oct 2007 00:16:15 GMT
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hi Jan, after I downloaded the whole codebase what would be the best way for me to proceed if I want to use Rob's code or smth else from there? Will I be able to compile and run in JAS?

Best, Andrei

Subject: Re: how to get VtxBarrHits for a particle?
Posted by [jfstrube](#) on Sun, 14 Oct 2007 02:57:04 GMT
[View Forum Message](#) <> [Reply to Message](#)

Hi Andrei,

yes, you can open Rob's files in JAS3. Just treat them like any files that you would create. Open the files in JAS3 and compile and load them from there.

Cheers,
Jan

Subject: Re: how to get VtxBarrHits for a particle?
Posted by [nomerot](#) on Sun, 14 Oct 2007 08:45:47 GMT
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hi Jan,

here is my current problem:

I'm trying to execute

maven jas:install (I presume this is what builds lcsim and sets it up to be used in JAS - is it right?)

after this command maven downloaded a number of .jar's but GeomConverter-1.1.jar timed out. Now it can't build because of it. I found the GeomConverter-1.1.jar somewhere else (actually maven suggested doing it from www.lcsim.org but I could not find an obvious link there to download it so Google saved me). Now I don't know what to do with it to let maven know that I have it - it still tries to download it.. What should I do?

I presume my course of action now is to

- 1) build lcsim that includes Rob's and Hans'es code
- 2) compile and load pieces which I need together with my code that uses them
- 3) run

Best, Andrei

Subject: Re: how to get VtxBarrHits for a particle?
Posted by [kutschke](#) on Sun, 14 Oct 2007 16:36:05 GMT
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Hi Andrei,

When I run maven, I always turn off the tests

```
cvs co GeomConverter
cvs co lcsim
cd GeomConverter
maven -Dmaven.test.skip=true
cd ../lcsim
maven -Dmaven.test.skip=true
maven -Dmaven.test.skip=true jas:install
```

I hate turning off the tests but I usually do. I can only run the tests on my desktop, which has 3GB of memory. If you try to run the tests on a machine with 1GB of memory it can take hours.

It is possible that I do not need to issue two separate maven commands for lcsim and just do it once, with the jas:install. I tried it once and it did not work, although the problem could be a mistake elsewhere.

Rob

Subject: Re: how to get VtxBarrHits for a particle?
Posted by [Dmitry Onoprienko](#) on Mon, 15 Oct 2007 00:42:01 GMT
[View Forum Message](#) <> [Reply to Message](#)

Hi Andrei,

if you only need to find SimTrackerHits produced by a particular MCParticle, there is no need to run digitization or other time consuming drivers.

An event in org.lcsim does not contain mapping of MCParticles to SimTrackerHits, so you have to build it, either by hand or by using one of the cheaters. Here is an example of a driver that prints out a number of hits produced by each particle in the event record:

```
import java.util.*;
import org.lcsim.event.*;
import org.lcsim.recon.mcTrackFinder.MCTrackFinder;
import org.lcsim.util.Driver;

public class SimHitTest extends Driver {

    public void process(EventHeader event) {

        // Building the map :

        HashMap<MCParticle,List<SimTrackerHit>> map =
MCTrackFinder.getMCParticleToSimTrackerHitMap(event);

        // Using it :

        List<MCParticle> mcList = event.getMCParticles();
        for (MCParticle mc : mcList) {
            List<SimTrackerHit> hitList = map.get(mc);
            System.out.println(hitList.size() + " SimTrackerHits are produced by "+
mc.getType().getName());
        }

    }
}
```

If you look at the source code for MCTrackFinder.getMCParticleToSimTrackerHitMap(event) method, it simply loops over all SimTrackerHits and puts them in a map based on particle returned by their getMCParticle() method. You can do it yourself rather than by using MCTrackFinder if, for example, you are only interested in vertex barrel hits and do not want to go through all SimTrackerHit collections, or if you do not want to include neutral MCParticles in the map.

Subject: Re: how to get VtxBarrHits for a particle?
Posted by [nomerot](#) on Mon, 15 Oct 2007 07:13:26 GMT
[View Forum Message](#) <> [Reply to Message](#)

Dima, thanks - it looks like this is exactly what I need.

I was able to build the GeomConverter and lcsim in the end - it seems the maven server was glitching over the weekend, now all downloads and then builds just fine.

Best, andrei

Subject: Re: how to get VtxBarrHits for a particle?
Posted by [nomerot](#) on Mon, 15 Oct 2007 08:39:24 GMT
[View Forum Message](#) <> [Reply to Message](#)

Dima, I tried it and it works ok! Did I actually need to build lcsim for this or are those methods available in the default lcsim?

thanks, Andrei

Subject: Re: how to get VtxBarrHits for a particle?
Posted by [Dmitry Onoprienko](#) on Mon, 15 Oct 2007 16:38:20 GMT
[View Forum Message](#) <> [Reply to Message](#)

Andrei, I do not remember when the last "official" release was made, so I am not sure whether it was before or after the mcTrackFinder package was moved from contrib to the main area. In any case, I would not recommend trying to use the lcsim.jar that can be downloaded through Jas3 plugin manager. Those releases are made very infrequently, and the framework is still under fairly rapid development, so if you try to use someone's recent code with old lcsim.jar, you are likely to run into problems.

I would check out both GeomConverter and lcsim modules from CVS, build them, and install into Jas3. I think you have already seen the tutorial on how to do this. If you do your own code development in NetBeans, you can also put your files into the org.lcsim source tree and build them together - with tests turned off, the build takes just a few seconds.

Subject: Re: how to get VtxBarrHits for a particle?
Posted by [nomerot](#) on Tue, 16 Oct 2007 11:53:21 GMT

hi Dima, I think I am making progress - thanks for your help!

I have another question : what "layer" in `SimTrackerHit.getLayer()` actually means? I found that hits with `layer=0` for example are not always constrained to the first VD layer but are all over the place. What is the best way to understand to which subsystem/layer this hit belongs?

Here is what I do so far:

```
public class Analysis104 extends Driver {

    private AIDA aida = AIDA.defaultInstance();
    protected void process(EventHeader event)
    {
        List<MCParticle> particles = event.get(MCParticle.class,event.MC_PARTICLES);
        aida.cloud1D("nTracks").fill(particles.size());
        System.out.println("# of tracks = "+particles.size());

// Building the map :
        HashMap<MCParticle,List<SimTrackerHit>> map =
MCTrackFinder.getMCParticleToSimTrackerHitMap(event);

// looping over particles
        for (MCParticle particle : particles)
        {
// for pi+ only
            if (particle.getPDGID() == 211) {
                System.out.println("next pion");
// filling some histos
                aida.cloud1D("energy").fill(particle.getEnergy());
                aida.cloud1D("cosTheta").fill(VecOp.cosTheta(particle.getMomentum()));
                aida.cloud1D("phi").fill(VecOp.phi(particle.getMomentum()));
// creating list of hits for each particle
                List<SimTrackerHit> hitList = map.get(particle);
// looping over hits for this particle
                for (SimTrackerHit trackerHit : hitList)
                {
                    int cell = trackerHit.getCellID();
                    int layer = trackerHit.getLayer();
                    double[] pos = trackerHit.getPoint();
                    System.out.println("cell = "+cell+" layer = "+layer+" x = "+pos[0]+" y = "+pos[1]);
                    aida.cloud2D(" layer "+layer+" x vs y").fill(pos[0], pos[1]);
                }
            }
        }
    }
}
```

```
}  
}  
}  
}  
}
```

thanks, Andrei

Subject: Re: how to get VtxBarrHits for a particle?
Posted by [Dmitry Onoprienko](#) on Tue, 16 Oct 2007 13:28:13 GMT
[View Forum Message](#) <> [Reply to Message](#)

Hi Andrei,

Layers are numbered separately for each tracking subdetector, so

```
simTrackerHit.getLayer() == 0
```

will be true for innermost layers of VXD barrel, VXD endcap, outer tracker barrel, outer tracker endcap, and forward tracker.

Given a SimTrackerHit, you can check whether it is in VXD barrel by evaluating

```
simTrackerHit.getSubdetector().getName().equals("VertexBarrel")
```

Or, if you would like to avoid string comparison at every step, you can look up Subdetector object for the vertex barrel by name once, and then compare it to the object returned by `simTrackerHit.getSubdetector()`. In practice, that will not make much difference since Java compiler caches short Strings, and will be doing object identity comparison anyway.

Alternatively, you can fill the map only with hits from "VtxBarrHits" list that can be fetched from the event by

```
List<SimTrackerHit> hitList = event.get(SimTrackerHit.class, "VtxBarrHits");
```

Subject: Neural Nets and lcsim.org
Posted by [lastovic](#) on Fri, 02 Nov 2007 15:33:00 GMT
[View Forum Message](#) <> [Reply to Message](#)

Hi All,

i am new to lcsim.org and was wondering whether there is a Neural Network built in the framework. In the case it is not, which NN package could be used?

Thank you,

Tomas

Subject: Re: Neural Nets and lcsim.org
Posted by [jfstrube](#) on Fri, 02 Nov 2007 21:08:29 GMT
[View Forum Message](#) <> [Reply to Message](#)

Hi Tomas,

there are several Java implementations of neural networks available on the web.

For example:

<http://www.jeffheaton.com/ai>

http://www-ra.informatik.uni-tuebingen.de/software/JavaNNS/welcome_e.html

None of those is distributed with org.lcsim at the moment, so you are free to choose whichever implementation you feel most comfortable with.

I have personally used the predecessor of the program advertied at the second link, and I can attest that it is quite usable.

Cheers,
Jan

Subject: Re: Neural Nets and lcsim.org
Posted by [tonyj](#) on Mon, 05 Nov 2007 17:52:47 GMT
[View Forum Message](#) <> [Reply to Message](#)

Hi, another NN site worth exploring,

<http://www.jooneworld.com/>

Also we have a neural net in our CVS repository written by Saurav Pathak. You can access the

source from:

```
cvs -d :pserver:cvs.freehep.org:/cvs/lcd co cjnn
```

this has been used successfully for org.lcsim in the past for photon recognition in the calorimeter. It is much simpler than some of the NN programs mentioned before, but may be well suited to the kind of problem we are interested in.

Any of these NN programs should be useable with org.lcsim, but I would like to take one and integrate it more closely with the framework. If you do any work with any of these please let us know how you get on.

Tony

Subject: Re: Neural Nets and lcsim.org
Posted by [NormanGraf](#) on Mon, 05 Nov 2007 18:35:32 GMT
[View Forum Message](#) <> [Reply to Message](#)

Hello Tomas,

Additional information on cjnn, and an application to the identification of hadronic final states in e+e- collisions, can be found in Saurav Pathak's thesis, available online at <http://repository.upenn.edu/dissertations/AAI3165743/>

Norman

Subject: Simple analysis example of stdhep files ?
Posted by [graham](#) on Wed, 07 Nov 2007 01:05:41 GMT
[View Forum Message](#) <> [Reply to Message](#)

Hi,

Are there some simple stand-alone examples of reading stdhep files and making histograms from 4-vectors ?

Also is there a straightforward way to filter certain events from stdhep files ?

I managed to get something working in JAS3 but have

some issues with what appear to be incorrectly formatted stdhep files. When scaling this up to many more events I'd prefer to do this either in C++ or F77. If we're going to be using the benchmarking 4-vectors for lots of studies, it would be good to have utilities available to do some QC before full simulation.

If the file was an LCIO file I could use whatever language I wanted. Not sure whether being able to convert stdhep to LCIO would be a desirable thing ?

regards
Graham

Subject: Re: Simple analysis example of stdhep files ?
Posted by [NormanGraf](#) on Wed, 07 Nov 2007 02:29:56 GMT
[View Forum Message](#) <> [Reply to Message](#)

Hello Graham,

The org.lcsim code distribution ships with a simple example of accessing MCParticle information in an stdhep file and histogramming some of the quantities. This is packaged as an example for JAS3 accessible via:

Help -> Examples -> org.lcsim examples -> Analysis101

Documentation can be found on a number of Linear Collider wiki pages, most fully at <http://confluence.slac.stanford.edu/display/ilc/Explanation+of+Analysis101+Driver>

One can, indeed, filter events from an stdhep file. Documentation can be found at:

<http://confluence.slac.stanford.edu/pages/viewpage.action?pageId=29924>

One can, in fact, easily convert stdhep files into LCIO format using the lcio command line tool which ships with the LCIO code distribution. Documentation can be found at:

<http://confluence.slac.stanford.edu/display/ilc/LCIO+Command+Line+Tool>

Please let us know if you experience any difficulties with the examples, or have any more questions.

By the way, which stdhep files were you experiencing difficulties with? If they truly are corrupted we should fix or remove them from the distribution.

Norman

Subject: Re: Simple analysis example of stdhep files ?
Posted by [gaede](#) on Wed, 07 Nov 2007 11:11:09 GMT
[View Forum Message](#) <> [Reply to Message](#)

Hi Graham,

in case you want to use a C++ tool, Marlin can read stdhep files and convert them to LCIO. So you can analyze the 4vectors as MCParticles. See [\\$MARLIN/examples/mymarlin/src/MyProcessor.cc](#). You can easily build this example by copying the full example directory and then use cmake:

```
cp -rp $MARLIN/examples/mymarlin .
cd mymarlin
mkdir build
cd build
cmake -C ../BuildSetup.cmake ..
make install
cd ..
export MARLIN_DLL=$PWD/lib/libmymarlin.so
#run
$MARLIN/bin/Marlin readstdhep.xml
```

You have to modify the BuildSetup.cmake to sth. like:

```
# ILC_HOME
SET( ILC_HOME "/afs/desy.de/group/it/ilcsoft/v01-01"
    CACHE PATH "Path to ILC Software" FORCE )

# Path to Marlin
SET( Marlin_HOME "${ILC_HOME}/Marlin/v00-09-08"
    CACHE PATH "Path to Marlin" FORCE )

# Path to LCIO
SET( LCIO_HOME "${ILC_HOME}/lcio/v01-08-03"
    CACHE PATH "Path to LCIO" FORCE )

## Path to RAIDA
SET( RAIDA_HOME "${ILC_HOME}/RAIDA/v01-03"
```



```
CACHE PATH "Path to RAIDA" FORCE )
```

```
# CMake Modules Path
```

```
SET( CMAKE_MODULE_PATH "${ILC_HOME}/CMakeModules/v01-01"  
    CACHE PATH "Path to CMake Modules" FORCE )
```

```
SET( BUILD_WITH "RAIDA"
```

```
    CACHE STRING "Build mymarlin with these optional packages" FORCE )
```

I have attached an example steering file that shows how to read sthep files.

If this example doesn't work your sthep file might be corrupted (or incompatible with the LCIO code). Could you then point us to the file that you are using.

Frank.

File Attachments

1) [read_stdhep.xml](#), downloaded 670 times

Subject: Re: Simple analysis example of sthep files ?
Posted by [graham](#) on Wed, 07 Nov 2007 15:29:37 GMT
[View Forum Message](#) <> [Reply to Message](#)

thanks Norman. I'll try using the sthep -> lcio converter.

Subject: Re: Simple analysis example of sthep files ?
Posted by [kutschke](#) on Wed, 07 Nov 2007 22:29:11 GMT
[View Forum Message](#) <> [Reply to Message](#)

Hi Graham,

I see that you already have some examples. I have one comment to add. You should not

directly access the stdhep "common block" but should access it via something like the LCIO container of MCParticles (or its equivalent in other frameworks). If not you will eventually get caught with the following:

Some of the ILC event files advertised to be in stdhep format are not. They are written in an unofficial extension of stdhep that will cause most stdhep readers to dump core (or, sometimes, to produce incorrect results). So you must either choose to avoid the bad files or choose your stdhep reader wisely.

Any file that contains more than NMXHEP particles in one event will cause the problem. This happens often in beamstrahlung event files. I have not seen the problem in other files but I can imagine situations that it might. Currently NMXHEP=4000 in the official release.

What readers to use:

The files can be read safely by org.lcsim.

I guess, but do not know for sure, that the code that converts stdhep to LCIO is also safe. Norman can you confirm this?

I do not know about Marlin but I would guess it's safe. Frank do you know?

The files cannot be read by the 4th concept code.

The files cannot be read by the standard stdhep libraries owned by the stdhep maintainers.

If you want to run private C++ code, reading stdhep directly without Marlin or LCIO, you are on your own, at least for now.

You mentioned wanting to use F77. There is no hope for that to ever work unless you make your own private copy of stdhep and compile in a sufficiently large value of NMXHEP.

There are good reasons to allow more than NMXHEP particles per event but this change was made without alerting the maintainers of stdhep so the change never made it to other stdhep readers.

I am aware of a hack that will work around the problem in a confined environment but it is not truly robust for use with the full body of legacy code. Any robust solution will require changes to the legacy code: the question is where to require the changes.

Rob

Subject: Re: Simple analysis example of stdhep files ?
Posted by [tonyj](#) on Thu, 08 Nov 2007 17:35:41 GMT
[View Forum Message](#) <> [Reply to Message](#)

kutschke wrote on Wed, 07 November 2007 14:29
Hi Graham,

Some of the ILC event files advertised to be in stdhep format are not. They are written in an unofficial extension of stdhep that will cause most stdhep readers to dump core (or, sometimes, to produce incorrect results). So you must either choose to avoid the bad files or choose your stdhep reader wisely.

Any file that contains more than NMXHEP particles in one event will cause the problem. This happens often in beamstrahlung event files. I have not seen the problem in other files but I can imagine situations that it might. Currently NMXHEP=4000 in the official release.

As you say the only non-standard feature of the stdhep files in use in the ILC community is the possibility that they can contain more than 4000 particles per event. I have never seen this be an issue except in background overlay events, I would be surprised if it effects anyone doing physics benchmark studies.

Quote:

What readers to use:

The files can be read safely by org.lcsim.

I guess, but do not know for sure, that the code that converts stdhep to LCIO is also safe. Norman can you confirm this?

I do not know about Marlin but I would guess it's safe. Frank do you know?

The files cannot be read by the 4th concept code.

The files cannot be read by the standard stdhep libraries owned by the stdhep maintainers.

All of the org.lcsim code and LCIO code uses dynamic allocation for events and can handle any number of particles.

To be pedantic the standard stdhep libraries can read files generated by SLIC or org.lcsim, so long as they do not actually contain more than 4000 particle per event.

If it is true that the standard libraries core-dump when reading an event with >4000 particles then

it is easy to at least fix them so that they die with a friendly message, since the number of particles is clearly in the header of each event.

Quote:

I am aware of a hack that will work around the problem in a confined environment but it is not truly robust for use with the full body of legacy code. Any robust solution will require changes to the legacy code: the question is where to require the changes.

Note that the Java code at least supports a "compatibility" option that will cause it to refuse to write events with >4000 particles, although it is not turned on by default.

I am happy to incorporate any suggestions anyone would like to make for handling compatibility with legacy code better. It would be nice to add a "max number of particles" in the header of the file, but difficult to implement since it is generally not known until the file is completely written.

Subject: Re: Simple analysis example of stdhep files ?
Posted by [tonyj](#) on Thu, 08 Nov 2007 17:40:15 GMT
[View Forum Message](#) <> [Reply to Message](#)

graham wrote on Tue, 06 November 2007 17:05
If the file was an LCIO file I could use whatever language
I wanted. Not sure whether being able to convert stdhep to LCIO would be a desirable thing ?

Note that one potential downside of converting to LCIO format is that the event weight included in the stdhep file is currently lost. I don't know if this is an issue for the events you are using, but it certainly is for some of the stdhep files being used for benchmarking studies.

I have started a thread on the LCIO forum to discuss this:

[http://forum.linearcollider.org/index.php?t=tree&goto=12 84&rid=3](http://forum.linearcollider.org/index.php?t=tree&goto=12%2084&rid=3)

Tony

Subject: Re: Simple analysis example of stdhep files ?
Posted by [graham](#) on Thu, 15 Nov 2007 19:41:50 GMT
[View Forum Message](#) <> [Reply to Message](#)

Hi Tony, Norman, Frank, Akiya,

I used the LCIO command line tool and was able to quickly get at what I wanted with code based off the lciobook example that I had at hand.

The lack of support for event weights in LCIO is an important issue. If we are going to make use of the process ID (IDRUP) for SM samples like the SLAC ones then I guess this also needs to be retained ?? I don't think it is realistic to have unweighted samples.

I was able to access this info from the freehep-stdhep implementation that ships with JAS3 0.8.3 for samples that include it. It would be helpful if it was clearer which samples have non uniform event weights. I include a code snippet here seeing as it is not in the standard examples. Code below based on extending the StdhepFilter.java example. Note that StdhepExtendedEvent is a subclass of StdhepEvent so if the record is a StdhepExtendedEvent record it is also a StdHepEvent record.

eg.

```
StdhepRecord record = reader.nextRecord();
nRecord++;

if (record instanceof StdhepExtendedEvent)
{
System.out.println(" Found a StdhepExtendedEvent ");
StdhepExtendedEvent extendedevent = (StdhepExtendedEvent) record;
System.out.println(" weight " +extendedevent.getEventWeight(1));
System.out.println(" IDRUP " +extendedevent.getIDRUP());
}

if (record instanceof StdhepEvent)
{
System.out.println(" Found a StdhepEvent ");
StdhepEvent event = (StdhepEvent) record;
}
```

for the SM sample it looks like the weights vary by a factor of 100.

Two questions/comments:

I) the freehep-stdhep API pointed to by Norman's reply
freehep-stdhep/apidocs/index.html
has the `getEventWeight` method as being
`getEventWeight()`
whereas I needed
`getEventWeight(int)`.

II) Is there a better way of making sure that I'm reading the
documentation relevant to my code ?

regards,
Graham

Subject: Re: Simple analysis example of stdhep files ?
Posted by [gaede](#) on Fri, 16 Nov 2007 07:45:57 GMT
[View Forum Message](#) <> [Reply to Message](#)

Hi Graham,

the next version of LCIO will have an event weight attribute. Both, the java command line tool and the c++ utility `stdhepjob` fill the event weight from the stdhep file in the LCIO file. Also the idrup process id is accessible as event parameter `_idrup`, e.g.:

```
int idrup = evt.getParameters().getIntVal("_idrup");
```

version v01-09 will be released soon, in the meantime you can use the pre-release tag v01-09-pre1.

Cheers, Frank.

Subject: JAS3 support of HBOOK and ROOT files
Posted by [mitaroff](#) on Wed, 05 Dec 2007 17:41:50 GMT
[View Forum Message](#) <> [Reply to Message](#)

Referring to the current "JAS3" version 0.8.3 build 1686 (Feb 1, 2007), and to the older 0.8.3 build 1643 (April 5, 2006), problems occur when opening an HBOOK or ROOT file (the latter created from that HBOOK file by "h2root" version 3.10 or 5.14, respectively, and with default or no compression, respectively). The platforms used are Debian-Linux (current JAS3 version) and MacOS X 10.4 (both versions).

Older JAS3 version 0.8.3 build 1643 (April 5, 2006):

HBOOK file opening = ok
ROOT 3.10 (default) = ok,
ROOT 5.14 (default) = see (2),
ROOT 5.14 (no compr.) = see (2);

Current JAS3 version 0.8.3 build 1686 (Febr. 1, 2007):

HBOOK file opening = see (1),
ROOT 3.10 (default) = ok,
ROOT 5.14 (default) = see (2),
ROOT 5.14 (no compr.) = see (2).

Errors:

(1) "Error during command processing"

Exception:

java.lang.RuntimeException: Error loading native library: freehep-hbook-2.0
at hep.io.hbook.Hbook.dolnit(Hbook.java:125) ...

Caused by:

java.lang.UnsatisfiedLinkError: no freehep-hbook-2.0 in java.library.path
at java.lang.ClassLoader.loadLibrary(ClassLoader.java:1682) ...

(2) "Error opening file"

Exception:

java.io.IOException: Error during decompression (size=5597/18939)
at hep.io.root.core.RootInputStream.slice(RootInputStream.java: 481) ...

Caused by:

ava.util.zip.DataFormatException: invalid stored block lengths
at java.util.zip.Inflater.inflateBytes(Native Method)
at java.util.zip.Inflater.inflate(Inflater.java:215) ...

In summary:

(1) the current JAS3 version cannot open HBOOK files, whereas the older version can do it;

(2) both JAS3 versions can open ROOT 3.10 files, but cannot open ROOT 5.14 files.

Winfried Mitaroff
(HEPHY Vienna)

Subject: Analysis101 fails to compile yet runs - why?
Posted by [manly](#) on Mon, 05 May 2008 10:50:04 GMT
[View Forum Message](#) <> [Reply to Message](#)

Sorry for the naivety, but I am just getting started.

I am using JAS3 v0.8.4rc3 (build 2137 Nov 6, 2007) on a system running Windows XP.
I am trying to follow the [working with a sample driver](#); example given in

<http://confluence.slac.stanford.edu/display/ilc/Working+with+a+Sample+Driver>

and cannot get Analysis101 to compile. The driver does load and will run. Yet, it does not compile as [working with a sample driver](#); implies it should. So, I'm confused; why does it not compile? If the compilation actually fails, why does it run?

I am able to load the data file and load Analysis101.java, but when I right click and try to compile Analysis101.java I get the following message provided by JAS3 in the compiler output window:

```
java.io.IOException: CreateProcess: javac -d "C:\Documents and Settings\Manly\JAS3\classes"
"C:\Documents and Settings\Manly\JAS3\java\Analysis101.java" error=2
at java.lang.ProcessImpl.create(Native Method)
at java.lang.ProcessImpl.<init>(Unknown Source)
at java.lang.ProcessImpl.start(Unknown Source)
at java.lang.ProcessBuilder.start(Unknown Source)
at java.lang.Runtime.exec(Unknown Source)
at java.lang.Runtime.exec(Unknown Source)
at org.freehep.jas.extension.compiler.ExternalCompiler.compile( ExternalCompiler.java:41)
at org.freehep.jas.extension.compiler.CompilerPlugin.compile(CompilerPlugin.java:180)
at org.freehep.jas.extension.compiler.CompilerPlugin.access$000 (CompilerPlugin.java:45)
at org.freehep.jas.extension.compiler.CompilerPlugin$1.fireActionPerformed(CompilerPlugin.java:215)
at javax.swing.AbstractButton$Handler.actionPerformed(Unknown Source)
at javax.swing.DefaultButtonModel.fireActionPerformed(Unknown Source)
at javax.swing.DefaultButtonModel.setPressed(Unknown Source)
at javax.swing.AbstractButton.doClick(Unknown Source)
```



```

at javax.swing.plaf.basic.BasicMenuItemUI.doClick(Unknown Source)
at javax.swing.plaf.basic.BasicMenuItemUI$Handler.mouseReleased (Unknown Source)
at java.awt.AWTEventMulticaster.mouseReleased(Unknown Source)
at java.awt.Component.processMouseEvent(Unknown Source)
at javax.swing.JComponent.processMouseEvent(Unknown Source)
at java.awt.Component.dispatchEvent(Unknown Source)
at java.awt.Container.dispatchEvent(Unknown Source)
at java.awt.Component.dispatchEventImpl(Unknown Source)
at java.awt.Container.dispatchEventImpl(Unknown Source)
at java.awt.Component.dispatchEvent(Unknown Source)
at java.awt.LightweightDispatcher.retargetMouseEvent(Unknown Source)
at java.awt.LightweightDispatcher.processMouseEvent(Unknown Source)
at java.awt.LightweightDispatcher.dispatchEvent(Unknown Source)
at java.awt.Container.dispatchEventImpl(Unknown Source)
at java.awt.Window.dispatchEventImpl(Unknown Source)
at java.awt.Component.dispatchEvent(Unknown Source)
at java.awt.EventQueue.dispatchEvent(Unknown Source)
at org.freehep.jas.util.waitcursor.WaitCursorEventQueue.dispatc
hEvent(WaitCursorEventQueue.java:47)
at java.awt.EventQueue.dispatchEvent(Unknown Source)
at java.awt.EventQueue.dispatchEventImpl(Unknown Source)
at java.awt.EventQueue.dispatchEvent(Unknown Source)
at java.awt.EventQueue.dispatchEvent(Unknown Source)
at java.awt.EventQueue.dispatchEvent(Unknown Source)
11:42:21 AM ----- compile failed

```

Subject: Re: Analysis101 fails to compile yet runs - why?
Posted by [tonyj](#) on Mon, 05 May 2008 19:38:39 GMT
[View Forum Message](#) <> [Reply to Message](#)

Hi Steve, welcome to the forums.

I think your first question about the compiler error is answered here:

<http://confluence.slac.stanford.edu/x/-nU>

The second issue I am not sure about. Obviously if you could not compile the example you should not be able to run it. At some point in the past the examples were accidentally being compiled into the lcsim jar file, maybe this is happening again. How did you get your copy of the lcsim software? Did you download it with the JAS download manager, or did you compile it yourself?

Tony

Subject: Re: Analysis101 fails to compile yet runs - why?
Posted by [manly](#) on Mon, 05 May 2008 21:29:25 GMT
[View Forum Message](#) <> [Reply to Message](#)

Very helpful. Thanks Tony.

I needed to download the JDK package of Java. It seems I had only JRE. So, I didn't have javac.exe and it wasn't happy about that.

Once I downloaded JDK version, Analysis101 compiled just fine.

I'm pretty sure I must have gotten the lcsim software using the JAS download manager. I don't recall having to compile anything myself.

Subject: JAS3 classpath question/trying to get trivialPFA to compile
Posted by [manly](#) on Tue, 17 Jun 2008 19:34:45 GMT
[View Forum Message](#) <> [Reply to Message](#)

I am running JAS3 on windows XP. I am trying to compile TrivialPFA.java in JAS3. The compilation fails with messages like

```
C:\Documents and Settings\Manly\My Documents\Research\ILC\LC_software\lcsim\src\org\lcsim\plugin\examples\TrivialPFA.java:14: package org.lcsim.recon.pfa.cheat does not exist
import org.lcsim.recon.pfa.cheat.PerfectIdentifier;
```

I have downloaded from CVS the software in LCsim. I was thinking when I saw these errors that it meant my classpath in JAS3 is incorrect. No surprise there since I was working with the initial default classpath unmodified. So I tried adding the classpath

```
C:\Documents and Settings\Manly\My Documents\Research\ILC\LC_software\lcsim\src\
```

and/or

```
C:\Documents and Settings\Manly\My Documents\Research\ILC\LC_software\lcsim\src\org\
```

and/or a path all the way to the directory containing the missing code ... such as all the way to \cheat\ for the missing package above. None of this seemed to help JAS3 find my missing packages.

How do I define the classpath correctly so that JAS3 finds the missing packages? Am I barking up the wrong tree?

Thanks,
Steve

Subject: Efficiency plot using AIDA
Posted by [partridge](#) on Wed, 18 Jun 2008 00:38:12 GMT
[View Forum Message](#) <> [Reply to Message](#)

I am trying to make some efficiency plots, but am running into a couple problems.

The Aida documentation indicates that there is a "type=efficiency" option for histograms, which is what I am trying to use.

The first problem is pretty trivial: the defaultInstance class in org.lcsim does not have a method that allows the option string to be passed.

The first problem can be bypassed by using the histogramFactory method to directly create the histogram. While I couldn't find any documentation on how to fill an efficiency histogram, using the fill method with a weight of 1 for passing entries and 0 when you have an inefficient entry seems to give a reasonable looking efficiency plot.

This brings me to the second problem, namely that the errors do not appear to be the expected binomial errors. I calculated a few bins by hand, and it looked like the errors were about a factor of 2 too big in those cases. There were some bins with low efficiency where the discrepancy looked to be even worse.

Just for the record, my expectation is that the error in an efficiency bin with n_{pass} call out of n_{tot} total calls will be:

$$\sigma = \sqrt{n_{\text{pass}} * (n_{\text{tot}} - n_{\text{pass}}) / n_{\text{tot}}}.$$

Subject: Re: Efficiency plot using AIDA
Posted by [partridge](#) on Wed, 18 Jun 2008 17:51:27 GMT
[View Forum Message](#) <> [Reply to Message](#)

Correction:

The error given wasn't normalized to the total number of calls (sigh). The correct binomial error for the efficiency is:

```
eff = npass / ntot  
eff_error = sqrt(eff * (1-eff) / ntot)
```

Subject: Re: JAS3 classpath question/trying to get trivalPFA to compile
Posted by [tonyj](#) on Tue, 24 Jun 2008 15:49:39 GMT
[View Forum Message](#) <> [Reply to Message](#)

Hi Steve, sorry for the slow reply (GLAST's first data is arriving this week, I am a little busy).

Are you still having this problem? It should not be necessary to adjust the JAS classpath, the problem looks to me that you do not have the most recent version of org.lcsim installed in JAS?

Tony

Subject: Re: JAS3 classpath question/trying to get trivalPFA to compile
Posted by [manly](#) on Tue, 24 Jun 2008 15:55:50 GMT
[View Forum Message](#) <> [Reply to Message](#)

This one we solved with Ron's help earlier in the week. We had not gone thru the correct procedure of building the GeomConverter and lcsim directories and doing a jas:install. We are up and running on my Windows XP machine but still struggling with a MacBook that my student is using. That problem we are discussing in a different thread. Thanks, Steve

Subject: Re: Efficiency plot using AIDA
Posted by [tonyj](#) on Mon, 07 Jul 2008 18:59:28 GMT
[View Forum Message](#) <> [Reply to Message](#)

Hi Rich, sorry I didn't have time to look at this yet. My expectation would be that an efficiency binner would have asymmetric errors, because of the constraint $0 \leq \text{eff} \leq 1$.

I did find the code which does the efficiency calculation. It is

```
http://java.freehep.org/svn/repobrowser.svn?path=%2ffreehep%
2ftrunk%2fjaida%2ffreehep-jaida%2fsrc%2fmain%2fjava%2fhep%2f
aida%2fref%2fdataset%2fbinner&revision=HEAD&name=freehep&bypassEmpty=true
```

EfficiencyBinner.java and
EfficiencyBinError.java

I believe the algorithm was swiped from HandyPak!

Subject: Re: Efficiency plot using AIDA
Posted by [tonyj](#) on Mon, 07 Jul 2008 19:31:31 GMT
[View Forum Message](#) <> [Reply to Message](#)

I tried the following:

```
import hep.aida.*;
import java.util.Random;

public class CreateAndPlotHistograms
{
    public static void main(String[] argv)
    {
        IAnalysisFactory af = IAnalysisFactory.create();
        ITree tree = af.createTreeFactory().create();
        IHistogramFactory hf = af.createHistogramFactory(tree);

        IHistogram1D h1 = hf.createHistogram1D("Histogram 1D", "Efficiency
test", 100, 0, 1, "type=efficiency");

        Random r = new Random();

        for (int i = 0; i < 10000; i++)
        {
            double x = r.nextDouble();
            double eff = x;
            h1.fill(x, r.nextDouble() > eff ? 1 : 0);
        }
    }
}
```

```
}  
  
IPlotter plotter = af.createPlotterFactory().create("CreateAndPlotHistograms.java plot");  
  
plotter.show();  
plotter.region(0).plot(h1);  
}  
}
```

and got
t:

which is clearly not correct.

File Attachments

1) [eff.png](#), downloaded 1059 times

Subject: Re: Efficiency plot using AIDA
Posted by [partridge](#) on Fri, 11 Jul 2008 18:51:11 GMT
[View Forum Message](#) <> [Reply to Message](#)

Hi Tony,

It looks like the code from Adam is calculating 95% CL intervals instead of 1 sigma error bars. That probably explains why the errors were a factor of ~2 too big compared to my estimates using binomial errors.

When there are more than 10 entries, this is explicit, as shown from the code fragment from EfficiencyBinError shown below:

```
69:     if (NX >= 10) {  
70:         // NUMBERS ARE ALL LARGE, SO CAN USE ANALYTIC CALCULATION  
71:         return 1.96*Math.sqrt(R1*(R2-R1)/R2)/R2;  
72:     }
```

What is being returned is just a factor of 1.96 times the binomial error.

I personally don't think 95% CL errors are all that useful - when people look at a plot they are expecting 68% CL errors unless there is a good reason for doing something different.

I also am not sure exactly what Adam was doing for the case of less than 10 entries - it looked like

there were a bunch of special cases and it is hard to tell by looking at the code if they make sense.

I would be happy to code a version of EfficiencyBinError that simply returned binomial errors if that would be useful.

Subject: Re: Efficiency plot using AIDA
Posted by [NormanGraf](#) on Mon, 14 Jul 2008 16:01:54 GMT
[View Forum Message](#) <> [Reply to Message](#)

Binomial errors, although a reasonable approximation for much of this problem domain, are mathematically incorrect, especially when one is close to 0 or 100%. I've posted some code which implements a solution to this problem which was developed by Marc Paterno on D0 quite some time ago.

File Attachments

1) [EfficiencyUncertaintyCalculator.java](#), downloaded 686 times

Subject: Fitting histograms with other histograms
Posted by [bjasper](#) on Fri, 13 Mar 2009 20:30:59 GMT
[View Forum Message](#) <> [Reply to Message](#)

What I'm trying to do is the following:

I have a data set (histogram) that is the sum of three separate distributions (also histograms).

I want to perform a chi-squared minimization to optimize the coefficients a,b,c in:

$$\text{chi-squared} = (\text{sum over bins "i"})[\text{DataHisto}_i - a*(\text{histo1}_i) - b*(\text{histo2}_i) - c*(\text{histo3}_i)]/(\text{sigma}_i)$$

Does anybody have an example for how to do discrete fits between histograms?

Subject: Re: Fitting histograms with other histograms
Posted by [turri](#) on Mon, 16 Mar 2009 18:14:39 GMT
[View Forum Message](#) <> [Reply to Message](#)

Hi,
probably the easier way to solve your fitting problem is to create your own function as described

here.

Your function would extend `AbstractIFunction` and provide the `double value(double x[])` as:

```
double value(double x[]) {
    return parameter("a")*h1.binHeight( h1.coordToIndex(x[0]) ) + parameter("b")*h2.binHeight(
h2.coordToIndex(x[0]) ) + parameter("c")*h3.binHeight( h3.coordToIndex(x[0]) );
}
```

where the histograms `h1,h2,h3` are passed to your function when constructing it (for example).

To specify that "a", "b" and "c" are parameters you have to invoke the proper constructor of `AbstractIFunction` in your function's constructor:

```
public MyFunction(String title, IHistogram h1, IHistogram h2, IHistogram h3) {
    super(title, new String[]{"x0"}, new String[] {"a","b","c"});
    this.h1 = h1;
    this.h2 = h2;
    this.h3 = h3;
}
```

You could then do a chi2 fit to your histogram data `hist_data` as:

```
IAnalysisFactory af = IAnalysisFactory.create();
IFitter fitter = af.createFitFactory().createFitter("chi2","jminuit","noClone=true");
```

```
MyFunction f = new MyFunction(h1,h2,h3);
```

```
IFitResult result = fitter.fit(hist_data,f);
```

Hope this helps.

Please let me know if you have any problems with the above instructions.

Ciao

Max

Subject: Concerning TrackerHits vs. SimTrackerHits
Posted by [alex.bogert](#) on Sat, 15 Aug 2009 19:42:04 GMT
[View Forum Message](#) <> [Reply to Message](#)

I am trying to exclude hits found on tracks in one particular track finding algorithm (SIDTracker) from the list of hits used by another track finding algorithm (AxialBarrelTracker or Garfield). The first algorithm uses TrackerHits, while the next algorithm uses SimTrackerHits. Is there a one-to-one correspondence between TrackerHits and SimTrackerHits, with pointers connecting the two lists, so that I can eliminate TrackerHits on SIDTracks from the list of SimTrackerHits used in the other algorithms? Alternatively, I could look for and eliminate SimTrackerHits in proximity to TrackerHits found on SIDTracker tracks, but that seems less appealing.

Subject: converting .aida to root/hbook file format
Posted by [wenzel](#) on Mon, 04 Jan 2010 20:01:30 GMT
[View Forum Message](#) <> [Reply to Message](#)

Dear all

First of all happy new year 2010. Is there a way to either instruct org.lcsim to write out its histograms in hbook/root format or is there a program that converts the .aida files into hbook/root formats. I saw that hepforge has rivet provides an aida2root program but in the end I didn't manage to get it compiled.

thanks

Hans

Subject: Re: converting .aida to root/hbook file format
Posted by [jfstrube](#) on Mon, 04 Jan 2010 21:01:11 GMT

[View Forum Message](#) <> [Reply to Message](#)

Hi Hans,

yes to both. The way I used to do it is to convert the aida file using paida.sourceforge.net with pyROOT

<https://confluence.slac.stanford.edu/display/ilc/AIDA+xml+to+ROOT+TTree+converter>

Recently, we had a Student work on this, though

<https://confluence.slac.stanford.edu/display/ilc/javaROOT>

This is probably more what you want.

Both are maintained on a 'best effort' basis. Please let me know if you have problems with either approach.

Cheers,

Jan

Subject: Re: converting .aida to root/hbook file format
Posted by [wenzel](#) on Thu, 07 Jan 2010 18:25:23 GMT
[View Forum Message](#) <> [Reply to Message](#)

Hi Jan

I just tried to get javaRoot to compile. But unfortunately unsuccessful
See below

```
svn co https://heplnm060.pp.rl.ac.uk/repos/javaROOT/tags/0.1.0/ javaRoot
cd javaRoot
```

```
make
cd src && make doc
make[1]: Entering directory `/home/wenzel/javaRoot/src'
make[1]: *** No rule to make target `doc'. Stop.
make[1]: Leaving directory `/home/wenzel/javaRoot/src'
make: *** [doc] Error 2
```

Subject: Check if an MC particle's vertex is in calorimeters
Posted by [lucaci](#) on Wed, 29 Sep 2010 15:25:05 GMT
[View Forum Message](#) <> [Reply to Message](#)

Dear all,
is there an easy way to check if an MC particle was born inside one of the calorimeters, i.e. ECAL? I've seen that there is a method from:

```
GearMgr -> getPointProperties() -> isCalorimeter()
```

but this does not work out of the box. My first attempt was something like this:

```
gear::GearXML gearXML("myfile.xml");  
gear::GearMgr *gearMgr = gearXML.createGearMgr();  
gearMgr->getPointProperties()
```

but this method is not implemented.

I've also tried by using the GEAR calorimeter parameters from the xml file, but this proves to be not trivial, it still implies hard coded numbers to create an ECAL volume.

Maybe I'm missing something, but I could not find an obvious way to do this. If anyone has a better idea, please let me know.

Thank you in advance for your help,
Angela

Subject: Re: converting .aida to root/hbook file format
Posted by [jfstrube](#) on Sat, 31 Mar 2012 20:07:42 GMT
[View Forum Message](#) <> [Reply to Message](#)

Not sure how this mail slipped past me for so long, but for posterity:

There was a bit of a problem with different include paths being set by ROOT, depending on the installation method. I have fixed that.

If you have ROOTSYS and JDK_HOME set, execute
make all instead of make.

Subject: ilcsoft version v01-13-02 vanished from afs?
Posted by [poeschl](#) on Mon, 10 Jun 2013 13:21:30 GMT
[View Forum Message](#) <> [Reply to Message](#)

Dear experts,

it looks as if maybe for good reasons the directory
/afs/desy.de/project/ilcsoft/sw/x86_64_gcc41_sl5/v01-13-02 did vanish over the weekend. Can
you confirm this and if yes how long is the lifetime of v01-13-03? I ask because we have an
internship student who needs this version at least until the end of this month.

Thanks in advance for your answer,

Roman

Subject: Re: ilcsoft version v01-13-02 vanished from afs?
Posted by [gaede](#) on Mon, 10 Jun 2013 13:33:29 GMT
[View Forum Message](#) <> [Reply to Message](#)

Hello Roman,

yes indeed, we removed the v01-13-02 afs installation as it is by now rather outdated and
obsolete and disk space had grown short.
You can try and simply link against the v01-13-03, or - preferably - switch to the DBD production
version v01-16-02.

Cheers, Frank.

Subject: Re: ilcsoft version v01-13-02 vanished from afs?
Posted by [poeschl](#) on Mon, 10 Jun 2013 13:53:41 GMT
[View Forum Message](#) <> [Reply to Message](#)

Ok, thanks for the quick reply.

Cheers,

Roman

Subject: Installation of ilcsoft v01-17-03 - Bug in DD4hep installation?!
Posted by [poeschl](#) on Wed, 16 Oct 2013 16:16:26 GMT
[View Forum Message](#) <> [Reply to Message](#)

Dear Experts,

I am about to carry out an ilcsoft installation from *scratch* and I think I have stumbled over a bug in the installation of the dd4hep package

I got an error message saying

```
*** ERROR in module [ DD4hep ]: failed to compile!!
```

Further upstream it is written e.g.

```
/srv/ilcsoft/v01-17-03/DD4hep/v00-04/DDCore/include/DD4hep/Objects.h:25:27: error:  
Math/Vector3D.h: No such file or directory
```

This means that the installation doesn't find some root include files.

It appears that the FindROOT.cmake in dd4hep finds my system wide root installation, which indeed doesn't contain the requested include files (why not is my problem but this doesn't matter here). When installed from *scratch* dd4hep should however always use the root version which got installed through the corresponding ilcinstall scripts.

The problem is (to my mind) in this line of code

```
find_program(ROOT_CONFIG_EXECUTABLE root-config  
  PATHS $ENV{ROOTSYS}/bin)
```

By this it stops searching on the first root-config it finds, which in my case is my (maybe buggy) system wide root installation.

I think one has to remedy this vulnerability, i.e. the FindROOT.cmake has somehow to be told which root version to use instead of starting to search on its own. It is very likely that on a system an additional root version is installed.

A temporary patch is:

```
find_program( ROOT_CONFIG_EXECUTABLE root-config HINTS ${ILC_HOME}/root/5.34.05/bin  
NO_DEFAULT_PATH)
```

After that build tells me

```
Found ROOT: /srv/ilcsoft/v01-17-03/root/5.34.05
```

while before it told me

```
Found ROOT: /usr
```

I prefer to use however a kind of official patch because I am afraid to destroy things down the line if I start to joke around with my private patches.

Thanks in advance and cheers,

Roman

P.S.: If the bug has been reported elsewhere and is corrected in the mean time, please excuse my ignorance

Subject: Re: Installation of ilcsoft v01-17-03 - Bug in DD4hep installation?!

Posted by [poeschl](#) on Wed, 16 Oct 2013 16:22:02 GMT

[View Forum Message](#) <> [Reply to Message](#)

Issue moved to Software Tools -> Marlin et al.

Subject: Best particle track display tool for a .slcio file

Posted by [mgaughran](#) on Tue, 19 Aug 2014 11:12:56 GMT

[View Forum Message](#) <> [Reply to Message](#)

Dear all,

What would be the simplest way to display a complete particle track from a .slcio file, produced using SLIC and lcsim? Ideally, we would also include the associated hits as points.

Thanks,

Martin Gaughran

Subject: Re: Best particle track display tool for a .slcio file
Posted by [jfstrube](#) on Tue, 19 Aug 2014 12:40:33 GMT
[View Forum Message](#) <> [Reply to Message](#)

Hi Martin,

Could you try downloading jas3 from here:
<http://jas.freehep.org/jas3/>

I haven't used it in a while, but ideally you open the program, open the plugin manager (under the "View" menu item(?)) install org.lcsim and wired4 plugins, restart jas3 and open your slcio file.

Then Open->Event display and you should have it.

This is off the top of my head. If it doesn't work, post back here.

To get to the first event you have to use the "Play" button (Tooltip says "Go 1") near the top.

Subject: Re: Best particle track display tool for a .slcio file
Posted by [mgaughran](#) on Tue, 19 Aug 2014 15:10:53 GMT
[View Forum Message](#) <> [Reply to Message](#)

I had tried using jas3 before with both of these plugins and it had repeatedly crashed. However, doing a clean install after deleting my old ~/.jas3ws/ and ~/.JAS3/ folders has worked. If anyone else is reading this, make sure you use jas3 v3.0.12, as the previous versions do not appear to work with these plugins.

Subject: Hashing LCIO objects in pyLCIO
Posted by [oliverReardonSmith](#) on Thu, 04 Sep 2014 15:59:59 GMT
[View Forum Message](#) <> [Reply to Message](#)

Hi all,

From the tests I've done any attempt to use these objects as keys in a dict fails. Adding them as keys seems to work fine however attempting to access the dictionary element fails.

Here is a minimal example to illustrate this behaviour. Presumably this is because the hash is based on references to the object rather than the object itself and the references change.

Currently I'm working around this with a "HashableMCParticle" python class that does implement `__hash__` and `__eq__` but the number of "HashableX" classes that I'm having to implement is rising rapidly.

Does anyone have a better solution?

Many thanks,

Oli

Subject: Re: Hashing LCIO objects in pyLCIO
Posted by [jfstrube](#) on Thu, 04 Sep 2014 23:51:04 GMT
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The easiest I can think of is to use the index in the collection, which you get from enumerate.

Then you would have to use `collection.elementAt(index)` each time you access the particle. That's not ideal, but you could sugar it by creating your own dict class with the collection in the constructor and an overloaded `__getattr__` or `__getAttribute__` method that returns the particle rather than the index.

Without more information on why the number of HashableX classes explodes, that's the quickest way I can think of to get what you want.
It slows down the code, but maybe not noticeably so.

Subject: Re: Hashing LCIO objects in pyLCIO
Posted by [oliverReardonSmith](#) on Fri, 05 Sep 2014 08:57:03 GMT
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Unfortunately I need to be able to access the object when its found in different collections. For example I'd like to create a dictionary of MCParticle -> [TrackerHit] by iterating over the relation

collection but be able to access it by iterating over the MCParticle collection.

After thinking about it some more I don't think having to wrap the Lcio classes in python ones is too bad (I only have five so far).

Thanks for your help though!

Edit: Actually using the wonders of reflection I only need one (highly dodgy) class to do everything I need.

Subject: Re: Hashing LCIO objects in pyLCIO
Posted by [jfstrube](#) on Fri, 05 Sep 2014 11:31:49 GMT
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If you are going down this path, the fortran bindings maybe useful. They are basically C code with Fortran headers if I'm not mistaken. You might be able to get rather far with ctypes, or cython.

Subject: Re: Hashing LCIO objects in pyLCIO
Posted by [oliverReardonSmith](#) on Fri, 05 Sep 2014 14:39:20 GMT
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Pure python seems to be working ok for now. I'm trying to keep everything as simple as I can at the moment. Currently the class just provides transparent access to the getters and setters of an Lcio object and a hash based on a subset of those (those that return primitive, TVector2, TVector3 or TLorentzVector types).

If I need anything more complicated then I'll look into the things you suggest.

Subject: problems installing v17-06 of ilcsoft
Posted by [fabsalva](#) on Thu, 28 May 2015 13:57:19 GMT
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Hi all,

I'm trying to install v17-06 of ilcsoft using the automatic installation:

./ilcsoft-install -i releases/v01-17-06/release-scratch.cfg

Everything seems to go OK until it is compiling the FastTrack package, and there I have the error below.

Did anyone have the same problem? Any help with this would be really appreciated!

Thanks,

Fab

=====

-- for some reason in the log it does not specify which variable/pointer is not declared.. :(

```
mv -f .deps/libfastjet_la-PseudoJet.Tpo .deps/libfastjet_la-PseudoJet.Plo
mv -f .deps/libfastjet_la-ClusterSequence_TiledN2.Tpo
.deps/libfastjet_la-ClusterSequence_TiledN2.Plo
mv -f .deps/libfastjet_la-ClusterSequence_CP2DChan.Tpo
.deps/libfastjet_la-ClusterSequence_CP2DChan.Plo
mv -f .deps/libfastjet_la-ClusterSequence.Tpo .deps/libfastjet_la-ClusterSequence.Plo
mv -f .deps/libfastjet_la-ClosestPair2D.Tpo .deps/libfastjet_la-ClosestPair2D.Plo
make[1]: Leaving directory `/research/epp/ilc/software/ilcsoft/v01-17-06/FastJet/2.4.2/ build/src'
make: *** [all-recursive] Error 1
Making install in src
make[1]: Entering directory `/research/epp/ilc/software/ilcsoft/v01-17-06/FastJet/2.4.2/ build/src'
/bin/sh ../libtool --tag=CXX --mode=compile g++ -DHAVE_CONFIG_H -I. -I../FastJet/src
-I../include/fastjet -O3 -Wall -g -DDROP_CGAL -I../FastJet/src/./include -MT
libfastjet_la-ClusterSequence_N2.lo -MD -MP -MF .deps/libfastjet_la-ClusterSequence_N2.Tpo -c
-o libfastjet_la-Cluster$
libtool: compile: g++ -DHAVE_CONFIG_H -I. -I../FastJet/src -I../include/fastjet -O3 -Wall -g
-DDROP_CGAL -I../FastJet/src/./include -MT libfastjet_la-ClusterSequence_N2.lo -MD -MP
-MF .deps/libfastjet_la-ClusterSequence_N2.Tpo -c ../FastJet/src/ClusterSequence_N2.cc
-fPIC -DPIC -o .li$
In file included from ../FastJet/src/ClusterSequence_N2.cc:36:0:
../FastJet/src/./include/fastjet/internal/ClusterSequence_N2.icc: In instantiation of 'Ã¢:
../FastJet/src/ClusterSequence_N2.cc:116:32: required from here
../FastJet/src/./include/fastjet/internal/ClusterSequence_N2.icc:109:39: error: 'Ã¢' was not
declared in this scope, and no declarations were found by argument-dependent lookup at the
point of instantiation [-fpermissive]
    if (jetA < jetB) {swap(jetA,jetB);}

```

^

In file included from /cvmfs/atlas.cern.ch/repo/ATLASLocalRootBase/x86_64/Gcc/gcc481_x86_64_slc6_slc6/x86_64_slc6-gcc48-opt/include/c++/4.8.1/ set:62:0,
from ../../FastJet/src/./include/fastjet/ClusterSequence.hh:57,
from ../../FastJet/src/./include/fastjet/internal/ClusterSequence_N2.icc:3,
from ../../FastJet/src/ClusterSequence_N2.cc:36:
/cvmfs/atlas.cern.ch/repo/ATLASLocalRootBase/x86_64/Gcc/gcc481_x86_64_slc6_slc6/x86_64_slc6-gcc48-opt/include/c++/4.8.1/ bits/stl_multiset.h:789:5: note: $\tilde{\phi}$
c>\$

```
swap(multiset<_Key, _Compare, _Alloc>& __x,
```

^

In file included from ../../FastJet/src/ClusterSequence_N2.cc:36:0:
../../FastJet/src/./include/fastjet/internal/ClusterSequence_N2.icc: In instantiation of $\tilde{\phi}$:
../../FastJet/src/ClusterSequence_N2.cc:122:34: required from here
../../FastJet/src/./include/fastjet/internal/ClusterSequence_N2.icc:109:39: error: $\tilde{\phi}$ was not
declared in this scope, and no declarations were found by argument-dependent lookup at the
point of instantiation [-fpermissive]
if (jetA < jetB) {swap(jetA,jetB);}

^

In file included from /cvmfs/atlas.cern.ch/repo/ATLASLocalRootBase/x86_64/Gcc/gcc481_x86_64_slc6_slc6/x86_64_slc6-gcc48-opt/include/c++/4.8.1/ set:62:0,
from ../../FastJet/src/./include/fastjet/ClusterSequence.hh:57,
from ../../FastJet/src/./include/fastjet/internal/ClusterSequence_N2.icc:3,
from ../../FastJet/src/ClusterSequence_N2.cc:36:
/cvmfs/atlas.cern.ch/repo/ATLASLocalRootBase/x86_64/Gcc/gcc481_x86_64_slc6_slc6/x86_64_slc6-gcc48-opt/include/c++/4.8.1/ bits/stl_multiset.h:789:5: note: $\tilde{\phi}$
c>\$

```
swap(multiset<_Key, _Compare, _Alloc>& __x,
```

^

```
make[1]: *** [libfastjet_la-ClusterSequence_N2.lo] Error 1  
make[1]: Leaving directory `/research/epp/ilc/software/ilcsoft/v01-17-06/FastJet/2.4.2/ build/src'  
make: *** [install-recursive] Error 1
```