LArSoft Coordination Meeting

Release and project report

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Today's agenda and speakers

- Release and project report (Erica)

- HEP Analysis Ecosystem Workshop (Phillipe Canal)

- Update on the integratio of the SBND light simulation into LArSoft (Diego Garcia-Gamez)

- Particle bomb generator (Andy Furmanski)

- Why should we move to geant4.10.3.p01? (Hans Wenzel)

- AOB

Releases

- Two weeks ago:

  - v06_29_00 released on March 29

    - Breaking changes to SpaceCharge as discussed at previous LCM

- Last week

  - v06_30_00 released on April 3

    - *art* **v2_06_03** + associated changes

      - See release notes for instructions to update local code
    - Otherwise **the same as v06_29_00**
    - **e10 only** (more on this on the next slide...)

  - v06_31_00

    - Updated to wirecell v0_5_2a + changes to develop

- This week

  - No merge requests yet

gcc 6 migration

- Making good progress to complete the migration to gcc 6.3.0

  - Needed to allow full support of Ubuntu 16 LTS, Mac OSX Sierra, fftw single precision library,..., so a high priority

- Main issues encountered:

  - Variable length arrays

```
auto const nPlanes = TPC.Nplanes();
int chargePerPlane[nPlanes];
```

- The variable length array `chargePerPlane` is not allowed in C++ standard
- Use vectors, or consult with LArSoft team in cases where memory is an issue

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  - Misleading indentation

- From the GCC 6 changes page:
  - "Warns about places where indentation of the code gives a misleading idea of the block structure of the code to a human reader"
- Many examples, e.g.

```
if ( <some condition> )
    foo(1);
    foo(2);
```

- Or

```
if ( <some condition ) ;
    foo(1);
...
```

- This check has already uncovered a long undiscovered bug

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  - Misleading indentation

  - Standard library header files

> - Some re-factoring occurred
>
> - Best practice is to *always* include the headers for *any* explicitly referenced code

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See the "Updating code to GCC 6" wiki page for up-to-date list / fixes

Other announcements

- Experiment release managers:

  - Please check that list of production releases (marked in **bold**) is up to date

    - See the list of LArSoft releases wiki page

  - We plan to remove all non-production releases prior to v06.02.00 (the first v06 series release)

  - Needed in order to free up space on /grid/fermiapp/products/larsoft

Other announcements

- **Code analysis target**

  - Previously announced BackTracker as next code analysis target

    - That proposal has been tabled until LArG4 work is completed

  - Taking suggestions for the next target

    - Want your code to run faster? :)

    - Be easier to maintain?

- **Meeting room change for next meeting on April 25**

  - WH8X

LArSoft workshop: Tues June 20, 2017

- **Registration is now OPEN**

  - See http://indico.fnal.gov/event/LArSoft-Workshop-2017

- Topics

  - SPACK build system tutorial

    - In depth, hands-on exploration of features, how to configure builds

  - Introduction to concurrency

    - What this means, why it is important, what it implies for your code in advance of multi-threaded *art* release

  - Debugging and profiling tutorial

    - Back by popular demand

  - New CI system features and configuration

Questions? Comments? Suggestions? larsoft-team@fnal.gov

Status of on-going sub-projects

- LArG4 re-factoring project

    – No report this week

- CI system operations

    – Vito di Benedetto

- Usability: associations

    – Saba Sehrish

- Profiling and optimization project

    – No report this week

- LArSoft documentation

    – Katherine Lato

The end