

# LArSoft Coordination Meeting

*Release and project report*

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on behalf of  
the SciSoft team  
*Fermilab*

April 2, 2024

# Today's agenda and speakers

- Release and project report (Erica)
- Proposed changes to recob::Hit (Erica)
- AOB

# Releases

- Since Mar 05 LCM:
  - v09\_85\_00 released May 5
    - New features
      - [LArSoft/larg4#52](#): Select separate volumes for dropped and nominal MCParticles
    - Bug fixes
      - [LArSoft/larsim#132](#): Remove exception check call to geometry that does not throw an exception
  - v09\_86\_00 released May 7
    - First release with *art* v3.14.04 + ROOT v6.28.10b. Otherwise identical to v09\_85\_00
    - Marks change to clang-format 15. Requires *cetmodules* v3\_24\_01
  - v10\_00\_00rc1 released May 7
    - Re-factored geometry release candidate updated to *art* 3.14.04
    - Based on v09\_86\_00

# Releases

- Since Mar 05 LCM:
  - v09\_72\_00\_01 released Mar 11
    - ICARUS production release
  - v09\_87\_00 released Mar 20
    - Resolved a problem using python with ROOT
      - Due to GENIE ROOT dictionaries with incomplete symbols.
    - Included a patch to GENIE
    - Moved Finddk2nudata from nusimdata to nufinder

# Releases

- Since Mar 05 LCM:
  - v09\_88\_00 released Mar 27
    - Updated to ROOT v6.28.12 due to bug in v6.28.10b
    - New features
      - [LArSoft/larrecondnn#44](#)
        - *New 2DCNN model to reject raw wire frames containing only radiological background*
        - *New 1D denoising autoencoder to be used in conjunction with 1DCNN ROI finder*
        - *Updated 1DCNN ROI finder code to allow reconfiguring waveform size on the fly*
      - [LArSoft/larpandoracontent#63](#)
        - Updates to support graph building to produce inputs for GNNs and Transformers.
        - Does not alter data products for any experiments
      - Bug fixes
        - [LArSoft/lareventdisplay#21](#): Fix to CMakeLists.txt

# Status of PRs

- Approval in progress
  - [larsim#133](#): Update MCReco to use MCParticle instead of MCParticleLite
    - Follow-up from previously merged [larg4#52](#)

# Status of PRs

- Under discussion
  - [larsim#136](#): Adding option to MUSUN generator to rotate coordinate system
    - To accommodate DUNE VD
      - (...Inquired as to why DUNE VD is using rotated coordinate system)
  - [larsim#135](#): Add automatic voxelization option to PhotonVisibilityService
    - Have requested an LCM presentation
  - [larwirecel#44](#): (opened Jan 17)
    - LArWireCell update to enable multiple signal response simulation across YZ-plane

# Status of coming updates (updated since Mar 5, 2024 LCM)

- **art v3.14.04 completed with v09\_88\_00**
  - Notes
    - Migrated to root 6.28.12
    - New Triton (v2\_25\_0d), TensorFlow (v2\_15\_0), libtorch (v2\_1\_1b)
    - New eigen (v23\_08\_01\_66e8f)
    - New version of clang-format (15)
      - Expect small differences in many files due to version change
      - LArSoft clang-format configuration is unchanged
    - Upgrade to **cetmodules 3.24.01 is required**



# Status of coming updates (updated since Mar 5, 2024 LCM)

- **Geometry refactoring**

- Current release candidate v10\_00\_00rc1 based on v09\_86\_00 + art 3.14.04
- Feature branches / PRs needed to update experiment code are available
  - See [Release and Project Report, page 6, at Dec 12 LCM](#) for v10\_00\_00rc0
  - Should work for v10\_00\_00rc1. If not, contact [scisoft-team@fnal.gov](mailto:scisoft-team@fnal.gov)
- Final presentation on the new system at the [Feb 20 LCM](#)
- Experiments formally asked on Feb 27 to validate new geometry system
- **Requested sign-off or validation plans by Tues, March 12. (!!)**
- Reminder sent out Fri, March 29.
- **Please let us know!!**

# Status of coming updates (no update since Mar 5, 2024 LCM)

- **Geant4**

- Plan to build LArSoft release candidate with Geant v4\_11\_2\_p01
  - The most recent production version recommended by Geant4 group
- Will require experiment sign-off prior to migration

**Please email [scisoft-team@fnal.gov](mailto:scisoft-team@fnal.gov) with any problems or concerns**

# Status of coming updates (no update since Mar 5, 2024 LCM)

- **Spack**
  - Current plan:
    - Migration to spack-based builds and development before SL7 EOL
    - SL7 build machines scheduled to shut-down mid-May
    - Decided: Containers can be used for code that requires UPS under SL7
    - Firm: No plan to support UPS under AL9.
  - Have Spack builds of LArSoft v09.81.00 under AL9 and SL7
    - To set up in AL9
 

```
source /cvmfs/larsoft.opensciencegrid.org/spack-packages/setup-env.sh
spack load larsoft/e3ryycs
```
    - To set up in SL7:
 

```
source /cvmfs/larsoft.opensciencegrid.org/spack-packages/setup-env.sh
spack load larsoft/2vibnrv
```
  - More information on model for developing under Spack coming soon.

The end