
Status of LArSoft Services Factorization

LArSoft Stakeholders Meeting

Oct. 6, 2015

What's Happening?

- DUNE 35t requires information extracted from its own databases (E-field strength, purity info, etc), so `LAr/DetectorProperties` needs updating.
- Currently these services do not decouple the data provider from the `art::service` class.
- The services I have decoupled are: `LArProperties`, `DetectorProperties`, and `TimeService`
- Data provider classes now reside in `lardata/DataProviders` package (this is to avoid circular dependencies), and belong to the `dataprov` namespace
- Service code remains in `lardata/Utilities`, however headers and source have the word “Service” appended, eg, `LArProperties` vs. `LArPropertiesService`

Major/Breaking Changes + Some Notes

- `TimeService` now renamed to `DetectorClocks`
- `SimpleTimeService` no longer exists (use `DetectorClocks`, not `DetectorClocksService`)
- Methods that are truly detector-specific have been moved out of `LArProperties` and into `DetectorProperties` (eg, `Efield` and dependencies). Impacts calculations of drift velocity, Birks suppression, etc.
- `Service handles` no longer used to access data. The service handles provide a const ptr to a data provider that can be used to access data. Eg:

```
const dataprov::DetectorProperties* detprop =  
    art::ServiceHandle<util::DetectorPropertiesService>()->getDetectorProperties();  
detprop->DriftVelocity();
```

- Note: do not delete the const ptr!
- Note 2: I have found a huge number of instances where one of these services is “included” in code but never used. I have cleaned some of this up.

Status

- All code changes are in the `jpaley_LArPropertiesBreakup` feature branch. The latest version of LArSoft has been merged into this branch.
- Working on updating `dunetpc` to work with these changes. Need another day [wall-clock time] to complete this.
- Will test code via some simple jobs that make use of all of these Services.
- Once the tests are successful, I will request a code review in preparation of a merge with development.