



ROOT I/O Workshop

Part 6

March 2015

Argonne / CERN / Vidyo

Schedule

(in Local Chicago Time)

• 09:15 – 09:35

• TTreeCache Update

• 09:35 – 09:55

• ATLAS Update

• 09:55 – 10:15

• CMS Update

• 10:15 – 10:30

• ROOT & Threads

• 10:30 – end

• Discussion

Release Schedule

- ROOT Release v6-00
 - Beta 2, January 29, 2014
 - Beta 3, March 26, 2014
 - Production, May 28, 2014
- ROOT Release v5-34-00 patches
 - v5.34/18 was released March 14th
 - v5.34/19 will include thread-safe I/O.

ROOT I/O

- Bug fixes
- Significant update to Thread Safety
 - Thanks to Chris Jones
- Several updates to support name changes between v5 and v6
- Several updates to improve detection of false checksum mismatch

ROOT Meta

• Introduce State of TClass object

```
enum EState {
    kNoInfo,           // The state has not yet been initialized, i.e. the TClass
                      // was just created and/or there is no trace of it in the
interpreter.
    kForwardDeclared, // The interpreter knows the entity is a class but that's it.
    kEmulated,        // The information about the class only comes from a TStreamerInfo
    kInterpreted,     // The class is described completely/only in the interpreter
database.
    kHasTClassInit,  // The class has a TClass proper bootstrap coming from a run
                      // through rootcling/genreflex/TMetaUtils and the library
                      // containing this dictionary has been loaded in memory.
    kLoaded = kHasTClassInit
};
```


ROOT I/O and v6

- Still need
 - Full Backward and Forward compatibility testing
 - Update to CheckSum
 - New issues: Fix support for base class evolution
- Rescheduled for after v6
 - Implement support for I/O for private classes
 - Type with template arguments that are enums

Base Classes

- Fix support for base class evolution
 - Currently base class schema version encoded in TStreamerInfo and **not** in byte stream.
 - **But** not taken into account in checksum
 - Changing file format is the 'right' solution
 - Issue with forward compatibility
 - Updating the checksum is lighter weight
 - Formalized current situation
 - Which Require change of all derived class version number if base class changes)

June Workshop

- June 25th, 2014 from 9h-17h
- At CERN in room 160-1-009
 - Physical presence required / strongly preferred
- Followed by 2 days set aside for ad-hoc design discussions

June WorkShop

- Time to refocus effort on I/O
- Want to hear from experiments/users
 - Unaddressed blockers
 - Input on priorities
 - Wildest dreams
- Will decide on next set of priorities

Effort

- My effort spread over ROOT I/O, Cling and Geant/GPU
 - Split 50/50 between ROOT (But has been focused on Cling) and Geant
- Extra effort required to make any real progress
 - Effort from ATLAS.
 - ROOT Team effort should increase after v6 release
 - See June presentation for plan (currently essentially on hold)
- Summer Students and other external contribution
 - TTreeReader delivered
 - Runtime generation of CollectionProxy Started