

Status of implementation plan document

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LArSoft Steering Group Meeting
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Implementation plan document

- Implementation plan
 - Documents high-level plan to meet requirements and goals gathered from the LArTPC community
 - Being developed within the Software and Computing Coordinators group
 - Armir Farbin, Thomas Junk, Tracy Usher, Erica Snider, Herb Greenlee, Wes Ketchum, Brian Rebel, Roxanne Guienette, Andrzej Szalc
 - A follow-on effort to the “Requirements from the LArTPC Community for Offline Software and Computing”
 - Repository for the requirements document
 - <http://cdcv.s.fnal.gov/projects/lartpc-requirements>
 - See: new-document/lartpc-requirements.pdf (should be v0.4)

Implementation plan document

- The document
 - Current document is in early draft form: v0 draft!!
 - At a summary level only!!
 - Presenting now to seek guidance on how to proceed

Repository for implementation plan document:


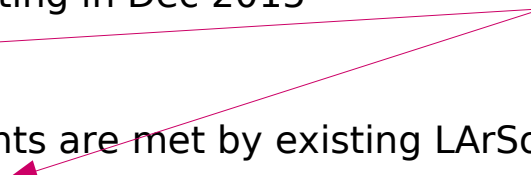
<ssh://p-lartpc-requirements@cdcvs.fnal.gov/cvs/projects/lartpc-requirements>

<http://cdcvs.fnal.gov/projects/lartpc-requirements>

See: [implementation_plan/lartpc-implementation-plan.pdf](#)

Implementation plan document

- Content of the document

- Experiment goals
 - Collected during half-day meeting in Dec 2015
- Capabilities 
 - Summarizes which requirements are met by existing LArSoft suite
- Capability gap for summer 2016 physics goals 
 - Summarizes gap in minimal requirements needed to meet short term goals relative to existing LArSoft suite capabilities
- Organizational structures and processes
 - Speaks to how we carry out the work of the collaboration

New since last meeting

Capability gap for summer 2016 goals

- Short term physics goals (< 6 months, as documented in Dec 2015)
 - DUNE 35t
 - March 1: reconstruct straight tracks
 - ProtoDUNE - none
 - DUNE
 - Jan 31: dual-phase simulation
 - June 1: “some” working full chain of reconstruction
 - June 1: interactive visualization that feeds back to LArSoft (Bee was called out)
 - LArIAT
 - Jan 1: GEANT v10
 - March 1: support for pion, K, and lifetime analyses
 - MicroBooNE
 - March 1: cosmic rate, diffusion measurement, purity papers
 - April 1: cosmic tagging for cross section measurement
 - June 1: CCQE, pion production, neutral current pi-zero cross section
 - *since modified to CC inclusive and pi-zero mass peak*
 - SBND
 - June 1: full chain reconstruction

Capability gap for summer 2016 goals

- Capability gap
 - 4.3.2: Shower / track discrimination is not functional in data
 - 5.1.1: Track finding does not perform sufficiently well
 - 5.2.1: Shower reconstruction in data does not perform sufficiently well
 - 5.3.1: Vertex finding may not be adequate
 - 5.4.1: Event t0 determination (flash matching) in data may not be adequate
 - 5.5.3: pi-zero identification does not work at present. Requires working shower identification (track / shower discrimination + shower reconstruction)
 - 5.6.2: Handling of dead and noisy channels in tracking and vertexing algorithms needs to be significantly improved
 - 7.2.10: Noise simulation does not accurately model detector. (Unknown whether this will matter for summer analyses)
 - 9.1.1: Dual-phase capability is insufficient to meet short term goals. (ProtoDUNE has elected to continue using an existing, alternative framework for the time being.)
 - 12.1.1: 3D interactive visualization interface state and state of Bee implementation is unknown, as is the suitability for short term goals
 - 12.2.2 - 12.2.5: Unknown which if any of these visualization capabilities are needed to meet short term goals. None are available in LArSoft, so an external solution would be required.