Recording Service Parameters

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Services

- Geometry.

- LarProperties.

- DetectorProperties.

- TimeService.

- SignalShaping (virtual service).

- PMT services?

How Geometry State is Saved

- Geometry name (= gdml file name) is saved in RunData data product in Run tree.

- Geometry service is able to update itself based on saved RunData objects.

- RunData is saved by various mc generators.

    – SingleGen

    – CosmicsGen

    – GENIEGen

    – TextFileGen

- RunData is not filled by any standard module while reconstructing data.

    – This is not satisfactory.

Other Services and Parameters

Service	Parameter	Constant During Run?	Read from DB?	Experiment Specific
Geometry	Geometry name	Y	maybe	N
LArProperties	E field	Y	Y	N
LArProperties	LAr temp	N	Y	N
LArProperties	LAr density	N	Y	N
LArProperties	Electron lifetime	N	Y	N
LArProperties	Drift velocity	N	Y	N
DetectorProperties	Num time samples	Y	N	N
DetectorProperties	Readout win size	Y	N	N
DetectorProperties	Plane time offset	Y	maybe	N

Other Services and Parameters (cont.)

Service	Parameter	Constant During Run?	Read from DB?	Experiment Specific
TimeService	Trigger offset	Y	maybe	N
TimeService	Sampling rate	Y	N	N
TimeService	G4 ref time	Y	N	N
TimeService	Frame period	Y	N	N
TimeService	Clock speeds	Y	N	N
TimeService	Default trig time	Y	N	N
TimeService	Default beam time	Y	N	N
SignalShaping	TPC gain	Y	Y	Y
SignalShaping	TPC shaping time	Y	Y	Y

Setting and Saving Service Parameters

- Each of the service parameters listed on previous slides is currently set by a fcl paremeter (or IOV DB).

  – None is saved, except geometry name.

  – For sim/reco chain to work, all must match previous stages.

  – Reading from IOV DB is not a substitute for saving service state.

- Paremeters that are constant during a run are candidates to be added to RunData (breaking change).

  – Or avoid breaking change by inventing a new run data product (perhaps experiment-specific).

- Paremeters that are not constant during a run would need to be saved more often (every subrun or every event?), and would need a new subrun/event data product.

  – There are currently no relevant data products that would be broken.