



Resource usage of upcoming production jobs (apologies for the brevity)

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FD sim/reco meeting
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Test job submission

- I submitted ~1500 genie/particle gun jobs to fermi grid at the end of last week. The jobs were separated into two stages
 - gen_g4 (all ran successfully)
 - detsim_reco (all held due to excessive memory usage)

Memory footprint example

- Detsim (wirecell + PDS response) RSS: 3099.84 MB
- Reco (wirecell + pandora + pmtrack + CVN + energy reco)
 - RSS: 3325.57 MB
- Running eventdump on detsim file: RSS: 1934 MB
- Detsim (Wirecell-only) RSS: 3218 MB
- Reco (Wirecell-only, using full detsim file) RSS: 2379 MB
- Detsim (old 1D signal simulation): RSS 1061 MB

50 event file size

- Detsim file (wirecell): 6.7 GB
- Detsim (1D sig sim): 0.73 GB
- Reco: 6.9 GB
- Reco (Wirecell-only): 6.8 GB

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G4 sim channels

Detsim file event dump

```
G4..... | elecDrift..... | ..... | std::vector<sim::SimChannel>..... | ..379
G4..... | PDFastSim..... | ..... | std::vector<sim::OpDetBacktrackerRecord>..... | ..480
G4..... | rns..... | ..... | std::vector<art::RNGsnapshot>..... | ...5
G4..... | largeant..... | LArG4DetectorServicevolTPCPlaneUInner | std::vector<sim::SimEnergyDeposit>..... | ....0
G4..... | PDFastSim..... | Reflected..... | std::vector<sim::SimPhotonsLite>..... | ..480
G4..... | PDFastSim..... | ..... | std::vector<sim::SimPhotonsLite>..... | ..480
G4..... | IonAndScint..... | ..... | std::vector<sim::SimEnergyDeposit>..... | ..2872
G4..... | largeant..... | LArG4DetectorServicevolTPCActiveInner | std::vector<sim::SimEnergyDeposit>..... | ..2872
G4..... | TriggerResults..... | ..... | art::TriggerResults..... | ....-
G4..... | largeant..... | ..... | std::vector<simb::MCParticle>..... | ..692
G4..... | largeant..... | LArG4DetectorServicevolTPCInner..... | std::vector<sim::SimEnergyDeposit>..... | ....0
G4..... | largeant..... | LArG4DetectorServicevolTPCPlaneVInner | std::vector<sim::SimEnergyDeposit>..... | ....0
G4..... | largeant..... | LArG4DetectorServicevolTPCPlaneZInner | std::vector<sim::SimEnergyDeposit>..... | ....0
G4..... | PDFastSim..... | Reflected..... | std::vector<sim::OpDetBacktrackerRecord>..... | ..480
G4..... | largeant..... | ..... | art::Assns<simb::MCTruth,simb::MCParticle,sim::GeneratedParticleInfo> | ..692
G4..... | largeant..... | LArG4DetectorServicevolTPCActiveOuter | std::vector<sim::SimEnergyDeposit>..... | ....0
detsim..... | opdigiDEF35QENonRef12PE | ..... | std::vector<raw::OpDetWaveform>..... | ....0
detsim..... | opdigiREF35QEPesRef12PE | ..... | std::vector<raw::OpDetWaveform>..... | ....0
detsim..... | tpcrawdecoder..... | simpleSC..... | std::vector<sim::SimChannel>..... | 30720
detsim..... | opdigiTHR35QENonRef13PE | ..... | std::vector<sim::OpDetDivRec>..... | ....0
detsim..... | tpcrawdecoder..... | daq..... | std::vector<raw::RawDigit>..... | 30720
```

Wirecell sim channels

1D sim detsim file event dump

detsim.....	TriggerResults.....	art::TriggerResults.....	..-
detsim.....	opdigiEFF30QENonRefL2PE.....	std::vector<sim::OpDetDivRec>.....	..0
detsim.....	opdigiEFF40QENonRefL2PE.....	std::vector<raw::OpDetWaveform>.....	..0
detsim.....	daq.....	std::vector<raw::RawDigit>.....	3830

1D signal sim raw digits

Detsim file event dump

G4.....	elecDrift.....	std::vector<sim::SimChannel>.....	..379	
G4.....	PDFastSim.....	std::vector<sim::OpDetBacktrackerRecord>.....	..480	
G4.....	rns.....	std::vector<art::RNGsnapshot>.....	..5	
G4.....	largeant.....	LArG4DetectorServicevolTPCPlaneUInner	std::vector<sim::SimEnergyDeposit>.....	..0
G4.....	PDFastSim.....	Reflected.....	std::vector<sim::SimPhotonsLite>.....	..480
G4.....	PDFastSim.....	std::vector<sim::SimPhotonsLite>.....	..480	
G4.....	IonAndScint.....	std::vector<sim::SimEnergyDeposit>.....	..2872	
G4.....	largeant.....	LArG4DetectorServicevolTPCActiveInner	std::vector<sim::SimEnergyDeposit>.....	..2872
G4.....	TriggerResults.....	art::TriggerResults.....	..-	
G4.....	largeant.....	std::vector<simb::MCParticle>.....	..692	
G4.....	largeant.....	LArG4DetectorServicevolTPCInner.....	std::vector<sim::SimEnergyDeposit>.....	..0
G4.....	largeant.....	LArG4DetectorServicevolTPCPlaneVInner	std::vector<sim::SimEnergyDeposit>.....	..0
G4.....	largeant.....	LArG4DetectorServicevolTPCPlaneZInner	std::vector<sim::SimEnergyDeposit>.....	..0
G4.....	PDFastSim.....	Reflected.....	std::vector<sim::OpDetBacktrackerRecord>.....	..480
G4.....	largeant.....	art::Assns<simb::MCTruth, simb::MCParticle, sim::GeneratedParticleInfo>	..692	
G4.....	largeant.....	LArG4DetectorServicevolTPCActiveOuter	std::vector<sim::SimEnergyDeposit>.....	..0
detsim.....	opdigiDEF35QENonRefL2PE.....	std::vector<raw::OpDetWaveform>.....	..0	
detsim.....	opdigiREF35QEPesRefL2PE.....	std::vector<raw::OpDetWaveform>.....	..0	
detsim.....	tpcrawdecoder.....	simpleSC.....	std::vector<sim::SimChannel>.....	30720
detsim.....	opdigiTHR35QENonRefL3PE.....	std::vector<sim::OpDetDivRec>.....	..0	
detsim.....	tpcrawdecoder.....	daq.....	std::vector<raw::RawDigit>.....	30720

Wirecell raw digits

Summary

- Detsim event footprint has increased significantly moving to wirecell
 - It seems like simchannels are digis are being stored for every example
- Is it possible to trim/remove the empty channels/digis or are these needed for the downstream reco?