Status of PD-VD Monte Carlo production

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DUNE Production & Processing overview

- Until end 2023 DUNE official productions used POMS (Production and Operations Management System)

- At the beginning of 2024 justIN was successfully deployed for production. LBL reco2 (high level reconstruction) campaign is the first one entirely run in justIN.

- justIN is a workflow system that processes data by satisfying the requirements of data location and data catalog with rapid code distribution service on the grid

- justIN relies on MetaCat, a new data catalog system and Rucio, a data distribution system (SAM datasets and file locations are not supported anymore)

- A tutorial on the new systems was distributed and presented among the different physics working groups (FD sim-reco , PD-VD sim-reco)

- The tutorial is available on DUNE-doc-30145

The tutorial is composed by 3 main sections

1. introduction to Rucio

2. introduction to MetaCat

3. introduction to justIN

In the backup, some additional documentation is available:

- jobscript checklist
- how to setup environment for MetaCat, Rucio, justIN
- useful links

Current campaign status

- A PD-VD Monte Carlo production request submitted to the production group in February 2024

- Some issues found in the dunesw version specified in the production request (presentation at the PD-VD sim- reco meeting, February 2024)

- Modifications to solve the issues have been prepared and included in a new dunesw version

- Production request updated (April 2024)

- Request description available in the wiki

  February 2024: PDVD MC pre-productions to validate the basic PDVD sim/reco chain (RITM 1998918)

  request description (06/02): File:240208-PDVDjobsRequest-Yoann.pdf

  updated request (15/04): File:240415-PDVDjobsRequest-Yoann(2).pdf

- Campaign organized in justIN (policy for production and processing DUNE-doc-29278)

Three samples have been required, 10k events each, output files from each simulation stage saved for detailed investigations before full production request

1. protodune-vd_cosmics_pureAr
    4 output files: geant4_stage1, geant4_stage2, detsim, reconstructions (10 events/file)

    completed, datasets are available, and posted in [data inventory](#) wiki pages

VD-protoDUNE	vd-protodune:vd-protodune__simulated__v09_88_00d00__protodunevd_refactored_g4_stage1__gen_protodunevd_cosmics__pureAr_validation⧉	RITM1998918	File count: 1150 Event count:	pure Ar g4_stage1
VD-protoDUNE	vd-protodune:vd-protodune__simulated__v09_88_00d00__protodunevd_refactored_g4_stage2_pureAr__gen_protodunevd_cosmics__pureAr_validation⧉	RITM1998918	File count: 1150 Event count:	pure Ar g4_stage2
VD-protoDUNE	vd-protodune:vd-protodune__detector-simulated__v09_88_00d00__protodunevd_refactored_detsim_pureAr__gen_protodunevd_cosmics__pureAr_validation⧉	RITM1998918	File count: 1150 Event count:	pure Ar detsim
VD-protoDUNE	vd-protodune:vd-protodune__full-reconstructed__v09_88_00d00__protodunevd_reco__gen_protodunevd_cosmics__out1__pureAr_validation⧉	RITM1998918	File count: 1150 Event count:	pure Ar reco

➢ A copy of these datasets is available on disk at CCIN2P3

▪   Datasets can be inspected following instructions in the tutorial

2. protodune-vd_cosmics_Xe10ppm

5 output files: geant4_stage1, geant4_stage2, geant4_stage3, detsim, reconstructions (10 events/file)

Full statistics available

➤ Corresponding five datasets are going to be produced:

1. vd-protodune:vd-protodune__simulated__v09_88_00d00__protodunevd_refactored_g4_stage1__gen_protodunevd_cosmics__Xedoping_validation
2. vd-protodune:vd-protodune__simulated__v09_88_00d00__protodunevd_refactored_g4_stage2_Xe10ppm__gen_protodunevd_cosmics__Xedoping_validation
3. vd-protodune:vd-protodune__simulated__v09_88_00d00__protodunevd_refactored_g4_stage3_Xe10ppm__gen_protodunevd_cosmics__Xedoping_validation
4. vd-protodune:vd-protodune__detector-simulated__v09_88_00d00__protodunevd_refactored_detsim_Xe10ppm__gen_protodunevd_cosmics__Xedoping_validation
5. vd-protodune:vd-protodune__full-reconstructed__v09_88_00d00__protodunevd_reco__gen_protodunevd_cosmics__out1__Xedoping_validation

and added to the data inventory page

➤ A copy of these datasets will be made available on disk at CCIN2P3

3. protodune-vd_electron_1GeV_pureAr → ongoing

- Jobscript tested now
  it runs,
  output files are saved,
  metadata are correct (all fields are filled as required, and datasets can be produced)

➢ Timescale: full sample produced by next week