

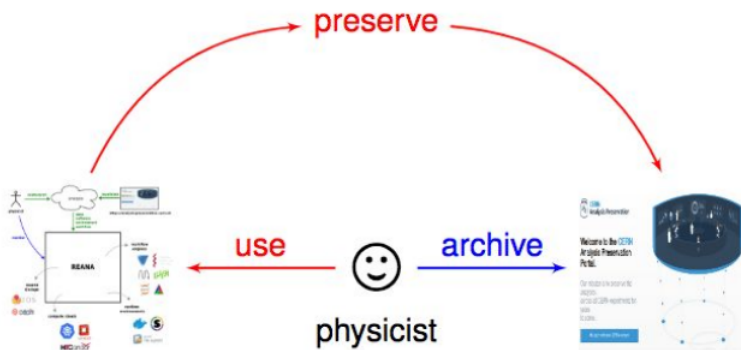
On-Demand Distributed Workflows for Physics Analysis at CMS Experiment

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REANA

CERN Analysis Preservation

Higgs-to-four-lepton analysis example using 2011-2012 data

Simplified reimplementaion of the Higgs discovery: Demo

Achievements

- Updated inputs from CODP: More validated datasets for 2011-2012 (Data and MC)
- Update workflows for new CMSSW environment "reana-env-cmssw"
- Local test for Docker and cwltool
- ReANA preliminary test

Road Blocks

- Waiting reana-client update for LXPLUS
- CAP Beta Release for testing

Jupyter Workshop for HSSIP Israel



Reprocessing AOD from 2010-2012 RAW samples

CERN Open Data Portal Validation Examples: Demo

- The objective is to compare the outputs of reprocessed AOD files for 2010-2012 RAW samples with CMS Open Data VM results and CRAB Grid Job submissions.

2010 Selected RAW files:

- /MinimumBias/Run2010B-Apr21ReReco-v1/RAW
- /Mu/Run2010B-Apr21ReReco-v1/RAW
- /Electron/Run2010B-Apr21ReReco-v1/RAW
- /Jet/Run2010B-Apr21ReReco-v1/RAW

2011 Selected RAW files:

- /SingleMu/Run2011A-120ct2013-v1/RAW
- /SingleElectron/Run2011A-120ct2013-v1/RAW
- /DoubleElectron/Run2011A-120ct2013-v1/RAW
- /DoubleMu/Run2011A-120ct2013-v1/RAW
- /Jet/Run2011A-120ct2013-v1/RAW

2012 Selected RAW files:

- /MinimumBias/Run2012B-22Jan2013-v1/RAW
- /SingleMu/Run2012B-22Jan2013-v1/RAW
- /SingleElectron/Run2012B-22Jan2013-v1/RAW
- /DoubleMuParked/Run2012B-22Jan2013-v1/RAW
- /DoubleElectron/Run2012B-22Jan2013-v1/RAW
- /JetHT/Run2012B-22Jan2013-v1/RAW

Achievements

- Data transfer from DC to Open Data
- Test succesful in new VM for 2011 RAW samples

Road Blocks

- Batch Job on Hold: T3_PR → T2_HIP
- GlobalTag symbolic link errors in Docker

Top quark mass measurement from b-jet energy spectrum

1. Select top-pair events that decay in the $e\mu$ channel from Data and MC
2. Fit and calibrate the b jet energy peak
3. Compare the results with the standard top-quark mass measurements performed with 8 TeV data

Achievements

- Code and Workflows were created
- Environment setup tested

Road Blocks

- CAP Testing First
- Test Locally for Docker and cwltool -eventually on ReANA-

Search for New Physics with Top Tagging and Missing Transverse Momentum



