

Overview of Release Validation

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On behalf of ReVal team

Credit: [Talk by Anup](#)

- 01 Goals & Overview
- 02 Validation Tools
- 03 2020 Campaigns
- 04 Summary & Outlook

PPD: Physics Performance & Datasets

- **Work with Physics to develop physics code**
- **Responsible for the validation of the physics performance of the code**
- **Sign-offs of the CMSSW production releases**

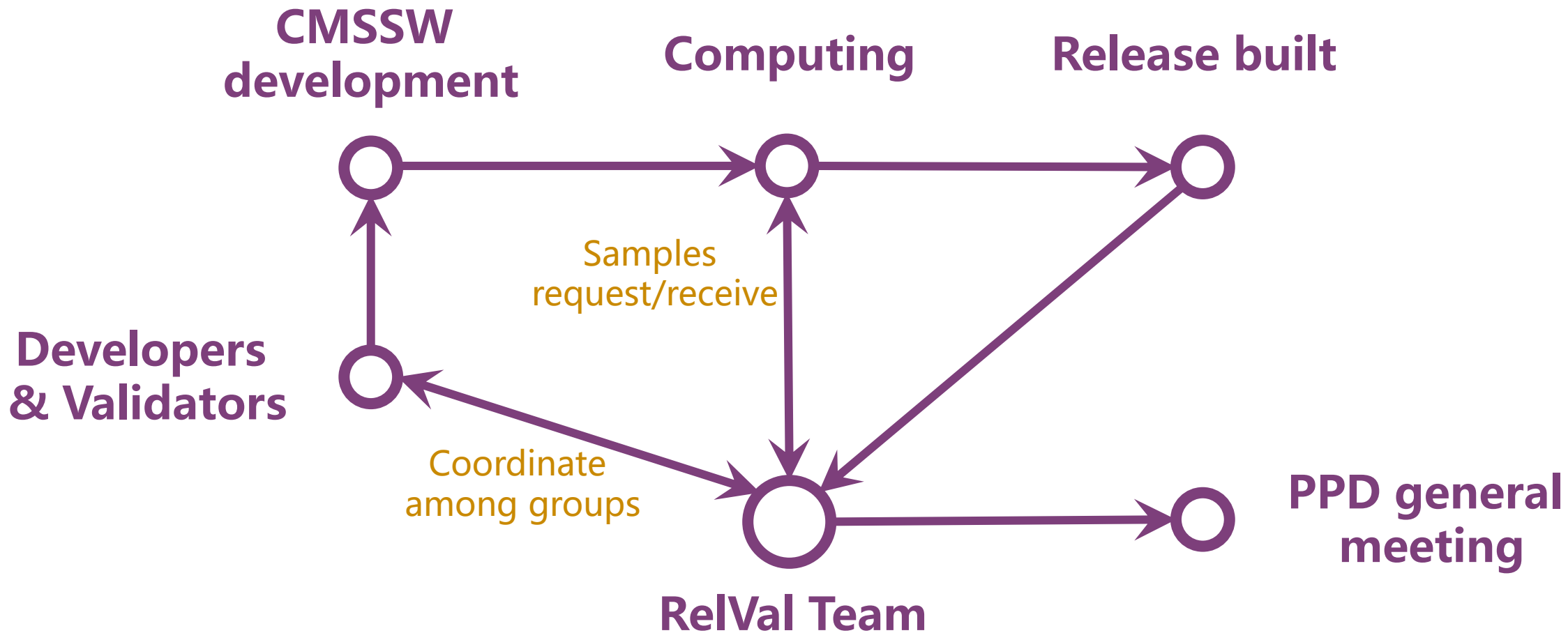
Goals: Validate the CMSSW

- **CMSSW(CMS SoftWare) is a complex software that consist of many parts**
- **Every update will cause a lot of changes in many parts**
- **Ensure all the changes are expected before release**

Efforts: Verify every changes

- Using samples(Data, FullSim and FastSim) to check whether update causes any change
- Verify every changes and give feed back if there is unexpected performance
- Sign off the release if everything is OK

Workflow



Main Validation Campaigns

- **CMSSW pre-release**
 - There will be many pre versions in the development of a main release
 - Every pre-release need to be validated
- **CMSSW main release**
 - No new features allowed except for customizations needed for production
 - Physics performance stays unchanged up to RECO level

PdmV Organigram



Validation Tools

RunTheMatrix framework

- Submit workflow by running a command "runTheMatrix"
- Approve the workflow through Reqmgr2 page

```
runTheMatrix.py --what upgrade -l  
11640.0,11634.0,11646.0,11650.0,11692.0,11652.0,11643.0,11661.0,11687.0,11719.0,11607.0,11608.0,11609.0  
-t 8 -b 'fullsim_noPU_2021_14TeV' -i all --noCaf --wm force
```

Validation Tools

RunTheMatrix framework

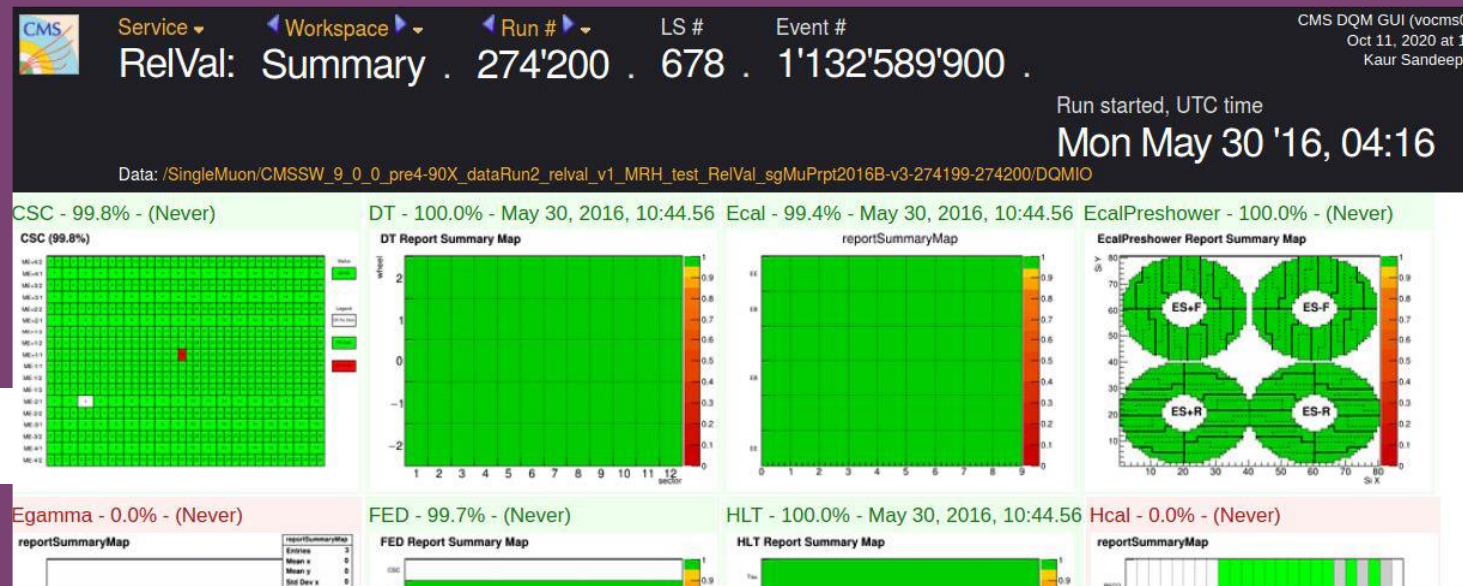
- Submit workflow by running a command “runTheMatrix”
- Approve the workflow through [Reqmgr2](#) page

	Request	Days Since Approval	Comp status	McM status	Unified status	Priority	#Primary	#ACDCs	#Clones	CPU-days	Requested	Produced	Completion
1	CMSSW_11_2_0_pre7_fullsim_noPU_2021_14TeV-1602002529-BuMixing_14	12.9	done	undefined	done	500,000	0	0	1	104.2	900,000	12,406	1.4%
2	CMSSW_11_2_0_pre7_fullsim_noPU_2021_14TeV-1602002529-H125GGgluonfusion_14	12.9	done	undefined	done	500,000	0	0	1	1	9,000	9,000	100.0%
3	CMSSW_11_2_0_pre7_fullsim_noPU_2021_14TeV-1602002529-MinBias_14TeV	12.9	done	undefined	done	500,000	0	0	1	10.4	90,000	90,000	100.0%
4	CMSSW_11_2_0_pre7_fullsim_noPU_2021_14TeV-1602002529-NuGun	12.9	done	undefined	done	500,000	0	0	1	1	9,000	9,000	100.0%
5	CMSSW_11_2_0_pre7_fullsim_noPU_2021_14TeV-1602002529-QCD_FlatPt_15_3000HS_14	12.9	done	undefined	done	500,000	0	0	1	5.8	50,000	50,000	100.0%
6	CMSSW_11_2_0_pre7_fullsim_noPU_2021_14TeV-1602002529-QCD_Pt_1800_2400_14	12.9	done	undefined	done	500,000	0	0	1	1	9,000	9,000	100.0%
7	CMSSW_11_2_0_pre7_fullsim_noPU_2021_14TeV-1602002529-SingleMuPT10	12.9	done	undefined	done	500,000	0	0	1	1	9,000	9,000	100.0%

Validation Tools

RelVal DQM GUI

- DQM plots are produced in the RelVal samples production
- Check the DQM plots and perform sample-to-sample comparison



Validation Tools

ValDB

- A web site gathering reports from all validation campaigns

Select one validation campaign: OK Campaigns found: 1

Validation Tables

Legend

- : Changes are expected;
- : Failure;
- : OK;
- : In progress;
- : Known issue;
- : Not yet done;
- : OK - to be signed-off by the validators;
- : Failure - to be signed-off by the validators;

Selected campaigns: 11_2_0_pre6_2021

Reconstruction

Data

Release Name	Tracker	Ecal	HGcal	Hcal	CASTOR	DT	CSC	RPC	GEM	MTD	PPS	L1	Tracking	Electron	Photon	Muon	Jet	MET	bTag	Tau	Info	RelMon	
11_2_0_pre6_2021																							

FastSim

Release Name	Tracker	Ecal	HGcal	Hcal	CASTOR	DT	CSC	RPC	GEM	MTD	PPS	L1	Tracking	Electron	Photon	Muon	Jet	MET	bTag	Tau	Info	RelMon	
11_2_0_pre6_2021																							

FullSim

Release Name	Tracker	Ecal	HGcal	Hcal	CASTOR	DT	CSC	RPC	GEM	MTD	PPS	L1	Tracking	Electron	Photon	Muon	Jet	MET	bTag	Tau	Info	RelMon	
11_2_0_pre6_2021																							

Validation Tools

RelVal Machine

RelVal
TICKETS RELVALS DASHBOARD
Logged in as Justinas Rumsevicius

Tickets

Columns

<input type="checkbox"/> Actions	<input type="checkbox"/> Status	<input checked="" type="checkbox"/> Batch Name	<input checked="" type="checkbox"/> CMSSW Release	<input checked="" type="checkbox"/> CPU Cores	<input checked="" type="checkbox"/> Matrix
<input checked="" type="checkbox"/> Memory	<input type="checkbox"/> Notes	<input type="checkbox"/> Recycle GS	<input checked="" type="checkbox"/> Workflows	<input type="checkbox"/> Command	<input type="checkbox"/> Created RelVals
<input type="checkbox"/> Creation	<input type="checkbox"/> History	<input type="checkbox"/> Label	<input type="checkbox"/> Rewrite GT String	<input type="checkbox"/> Sample Tag	

PrepID	Batch Name	CMSSW Release	CPU Cores	Matrix	Memory	Workflows
CMSSW_11_2_0_pre7_data2017F-00001	data2017F	CMSSW 11.2.0.pre7	8	standard	13500 MB	12 workflows: 136.828, 136.829, 136.83, 136.831, 136.832, 136.833, 136.834, 136.835, 136.836, 136.837, 136.838, 136.839
CMSSW_11_2_0_pre7_data2018D-00001	data2018D	CMSSW 11.2.0.pre7	8	standard	13500 MB	12 workflows: 136.885, 136.886, 136.887, 136.888, 136.889, 136.89, 136.891, 136.892, 136.893, 136.894, 136.895, 136.896
CMSSW_11_2_0_pre7_data2016B-00001	data2016B	CMSSW 11.2.0.pre7	8	standard	13500 MB	10 workflows: 136.721, 136.722, 136.723, 136.724, 136.725, 136.726, 136.729, 136.73, 136.731, 136.732

[New ticket](#)
Showing 1 - 3 of 3 Page size: 20 50 100 Page 0

Validation Tools

Relmon Report Page

RelMonReports

- [Link to the Online DQM GUI](#)
- [Link to the Offline DQM GUI](#)
- [Link to the RelVal DQM GUI](#)
- [Link to the Data RelVal files](#)
- [Link to the MC RelVal files](#)

RelMon na

CMSSW_11_2_0_pre6_Phase2_vs

Created: 2020-09-22 12:23
Size: 166.72 MB

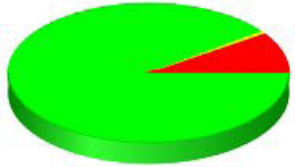
[RelMon](#) Global Report: FullSimReport [main...](#)

Summary

1130792 COMPARISONS:

- SUCCESS: 89.9% (1016420)
- NULL: 0.6% (7109)
- FAIL: 9.5% (107263)

[To the DQM GUI...](#)



Releases:

- CMSSW_11_2_0_pre5
- CMSSW_11_2_0_pre6

Statistical Test (Pvalue threshold):

- CHI2 (1E-05)

Campaigns in 2020

- **11_1_X**: for HLT TDR ReReco campaign (finished)
- **11_2_X**: for migration to DD4HEP (ongoing)
- **10_6_X**: Pythia bug fix for UL17 (finished)
- **11_3_X**: for GPU-CPU validation (to be continued)
- **12_X_X**: for RunIII physics exercise and preparation (to be continued)

Summary & Outlook

- **Overview of release validation work**
- **Another fruitful year for release validation campaigns**
 - Phase2 HLT TDR
 - UL campaign with Pythia bug fix
 - Migration plan pf DD4HEP
 - Continuation of RunIII and Phase2 development
- **Ongoing work and next plan**



THANKS