Data Processing Group activities: status and plans

DPG
ALICE • Data Preparation Group

Outline

- **Data Processing**: status and plans
  - Reconstructions from 2016
  - Status and Plans for 2017
- **Monte Carlo** productions: status and plans
  - Summary of QM campaign
  - Status and Plans for 2017
- Towards **2017 data taking**
- **Analysis QA**
- **AliDPG** status and plans
- **What is down the pike**
- **Conclusions**

Data reconstruction campaign in 2016

DPG ALICE · Data Preparation Group

2015 PbPb, 5 TeV (LHC15o)

2015 pp, 5 TeV (LHC15n)

2016 pp, 13 TeV (LHC16k, l)

2016 pPb, 5 TeV (LHC16q)

2016 pPb, 8 TeV (LHC16r)

2016 Pbp, 8 TeV (LHC16s)

2016 pPb, 5 TeV (LHC16t)

Period	Pass	Aliroot version	Characteristics			
			TPC cluster error assigment (1) and TPC SP maps	BB in tracking (2)	PID in TPCin step (3)	EMCAL online trigger data stream
Pb-Pb						
LHC15o lowIR	pass2	v5-08-09a	Old	Wrong, 5-sigma	All pions	OK
	pass3_lowIR_pidfix	v5-08-13l	New	Correct, 15-sigma	All pions	OK
	pass4_lowIR_pidfix_cookdedx	v5-08-13q-cookdedx	New	Correct, 15-sigma	Fixed	OK
LHC15o highIR						
group1	pass1	v5-08-13d	New	Wrong, 5-sigma	All pions	Needs offline fix (4)
group2	pass1	v5-08-13e	New	Wrong, 5-sigma	All pions	OK
group3	pass1	v5-08-13h	New	Wrong, 5-sigma	All pions	OK
group4	pass1_pidfix	v5-08-13l	New	Correct, 15-sigma	All pions	OK
pp 5 TeV						
LHC15n	pass2	v5-08-13d	New	Wrong, 5-sigma	All pions	
	pass3	v5-08-13s-cookdedx	New	Correct, 15-sigma	Fixed	
pp 13 TeV						
LHC16l	pass1	v5-08-13m-cookdedx	New	Correct, 15-sigma	Fixed	
LHC16k	pass1	v5-08-13r-cookdedx	New+fix (5)	Correct, 15-sigma	Fixed	
pPb 5.02 TeV						
LHC16q	pass1_FAST	v5-08-13w-cookdedx	New	Correct, 15-sigma	Fixed	
LHC16q	pass1_CENT_wSDD	v5-08-13w-cookdedx	New	Correct, 15-sigma	Fixed	
LHC16q	pass1_CENT_woSDD	v5-08-13w-cookdedx	New	Correct, 15-sigma	Fixed	
pPb 8.16 TeV						
LHC16r	pass1_FAST	v5-08-13w-cookdedx	New	Correct, 15-sigma	Fixed	
LHC16r	pass1_CENT_wSDD	v5-08-13w-cookdedx	New	Correct, 15-sigma	Fixed	
LHC16r	pass1_CENT_woSDD	v5-08-13w-cookdedx	New	Correct, 15-sigma	Fixed	
Pbp 8.16 TeV						
LHC16s	pass1_FAST	v5-08-13w-cookdedx	New	Correct, 15-sigma	Fixed	
LHC16s	pass1_CENT_wSDD	v5-08-13w-cookdedx	New	Correct, 15-sigma	Fixed	
LHC16s	pass1_CENT_woSDD	v5-08-13w-cookdedx	New	Correct, 15-sigma	Fixed	
pPb 5.02 TeV						
LHC16t	pass1_FAST	v5-08-13w-cookdedx	New	Correct, 15-sigma	Fixed	
LHC16t	pass1_CENT_wSDD	v5-08-13w-cookdedx	New	Correct, 15-sigma	Fixed	
LHC16t	pass1_CENT_woSDD	v5-08-13w-cookdedx	New	Correct, 15-sigma	Fixed	

From: https://twiki.cern.ch/twiki/bin/view/ALICE/AliDPGRun2DataSets

DPG
ALICE • Data Preparation Group

Data reconstruction campaign in 2017

Period	B field	IR (kHz)	N runs(*)	INT7 triggers (M)	CPass time (d)	PPass time (d)
LHC16f	Low B- (**)	5-70	25	61	1.6	1.9
LHC15l	B+	400	124	31	13.3	7.2
LHC16i	B+	200-600	21	38	2.4	2.0
LHC16o	B+	120 (**)	122	64	4.0	6.6
LHC16p	B+	120	42	24	2.4	3.4
LHC16g	B-	75-120	20	32	1.1	1.3
LHC16m	B+	120 (**)	45	37	2.6	4.3
LHC16h	B+ (**)	120-200 (**)	91	113	5.3	5.2
LHC16j	B+	240	58	80	4.7	3.8

(*) with SPD, SDD, SSD, TPC, TRD
(**) few runs with different settings

Data reconstruction campaign in 2017

Period	B field	IR (kHz)	N runs(*)	INT7 triggers (M)	CPass time (d)	PPass time (d)
LHC16f	Lo	LHC16f: PPass completed, Good run lists completed			.6	1.9
LHC15l	B+	4	LHC15l: PPass ongoing	31	13.3	7.2
LHC16i	B+	2	LHC16i: PPass completed	38	2.4	2.0
LHC16o	B+	1	LHC16o: CPass completed	54	4.0	6.6
LHC16p	B+		LHC16p: CPass completed	24	2.4	3.4
LHC16g	B-	75	LHC16g: CPass starting	32	1.1	1.3
LHC16m	B+	120 (**)	45	37	2.6	4.3
LHC16h	B+ (**)	120-200 (**)	91	113	5.3	5.2
LHC16j	B+	240	58	80	4.7	3.8

(*) with SPD, SDD, SSD, TPC, TRD

(**) few runs with different settings

DPG
ALICE • Data Preparation Group

Data reconstruction campaign in 2017

Period	B field	IR (kHz)	N runs(*)	INT7 triggers (M)	CPass time (d)	PPass time (d)
LHC16d	B-	1.5-5.5	26	21 + 42	1.2	1.1
LHC16e	B-	Up to 600	34	70 + 81	2.4	2.0
LHC15i	B+	30-300	112	162	7.9	7.1
LHC15g	B+ (**)	1-380	13	35+4	2.1	1.2
LHC15h	B+ (**)	20-500	50	136+23	6.8	3.1
LHC15j	B+	300-400	21	330	10.5	6.3
LHC15k	B-	1-350	124	60	0.7	1.3

- Few issues during processing: CASTOR, grid
- **Detector response very fast and timely!**
  Thanks!!

(*) with SPD, SDD, SSD, TPC, TRD
(**) few runs with different settings

DPG
ALICE • Data Preparation Group

Data reconstruction campaign in 2017

Period	B field	IR (kHz)	N runs(*)	INT7 triggers (M)	CPass time (d)	PPass time (d)
LHC16d	B-	1.5-5.5	26	21 + 42	1.2	1.1
LHC16e	B-	Up to 600	34	70 + 81	2.4	2.0
LHC15i	B+	30-300	112	162	7.9	7.1
LHC15g	B+ (**)	1-380	13	35+4	2.1	1.2
LHC15h	B+ (**)	20-500	50	136+23	6.8	3.1
LHC15j	B+	300-400	21	330	10.5	6.3
LHC15k	B-	1-350	124	60	0.7	1.3

- Few issues during processing: CASTOR, grid
- **Detector response very fast and timely! Thanks!!**

(*) with SPD, SDD, SSD, TPC, TRD
(**) few runs with different settings

By the end of May it could be possible to start 2015 data – *caveat: from May on, data taking!*

DPG ALICE • Data Preparation Group

Monte Carlo campaign for QM

Period	OCDB	Requestor	Priority	Generator		Pass	Production	Events (M)	Time (days)	Status	M events done	% done
LHC15f		HMTF		EPOSLHC			LHC16d3	150	18	COMPLETED	72.3	48.2
LHC15n		DPG		PYTHIA6	minimum bias	pass2	LHC16h8a	70	7	INCOMPLETE	70.139	100.2
				PYTHIA8	minimum bias	pass2	LHC16h8b	70	7	INCOMPLETE	69.363	99.1
				PYTHIA6	minimum bias	pass3	LHC16k5a	70	7	FINAL QA	69.692	99.6
				PYTHIA8	minimum bias	pass3	LHC16k5b	70	7	FINAL QA	69.692	99.6
				PYTHIA6	pileup	pass2	LHC16k3a	15	1.5	RUNNING FULL	15.085	100.6
				PYTHIA6	minimum bias	pass2	LHC16k3a2	15	1.5	FINAL QA	15.695	104.6
		HF		PYTHIA6	D2H	pass2	LHC16i6a	3	0.3	FINAL QA	3.148	104.9
				PYTHIA6	HFE	pass2	LHC16i6b	3	0.3	FINAL QA	3.350	111.7
		GA		PYTHIA8	$\pi^0 + \eta$	pass2		10		POSTPONED		
				PYTHIA8	p_T-hard	pass2	LHC16h3_bis	100	12	RUNNING FULL	111.156	111.2
		LF		PYTHIA8	p_T-hard	pass2	LHC16h3	60	7.2	FINAL QA	71.113	118.5
LHC15o		DPG		HIJING	minimum bias	pass4	LHC16j7{ab}	4.7	15.7	FINAL QA	5.011	106.6
				HIJING	minimum bias	pass3	LHC16g1	3	10	FINAL QA	3.214	107.1
					central	pass3	LHC16g1a	0.3	4.1	FINAL QA	0.320	106.7
					semi-central	pass3	LHC16g1b	2	11	FINAL QA	2.403	120.2
					peripheral	pass3	LHC16g1c	6	4.4	FINAL QA	6.486	108.1
				HIJING	pileup	pass3	LHC16k3b	0.78	2.6	RUNNING FULL	0.808	103.6
		LF		HIJING	ITSsa	pass4	LHC16h1	0.2	0.7	COMPLETED	0.228	114.0
				HIJING	strangeness	pass3	LHC16i1a	0.2	2.2	FINAL QA	0.220	110.0
							LHC16i1b	2.5	13.7	FINAL QA	2.609	104.4
							LHC16i1c	10	7.4	FINAL QA	10.519	105.2
				HIJING	strangeness high-p_T	pass3	LHC17a1a	0.016	0.2	FINAL QA	0.016	100.0
							LHC17a1b	0.250	1.4	FINAL QA	0.293	117.2
							LHC17a1c	1	0.74	FINAL QA	1.144	114.4
				HIJING	nuclei	pass3	LHC16h7a	0.1	1.4	FINAL QA	0.109	109.0
							LHC16h7b	0.4	2.2	FINAL QA	0.434	108.5
							LHC16h7c	0.4	0.3	FINAL QA	0.355	88.8
		HF		HIJING central	D2H	pass3	LHC16i2a	1	13.5	FINAL QA	1.006	100.6
					HFE	pass3	LHC16i3a	1	13.5	FINAL QA	1.005	100.5
				HIJING semicentral	D2H	pass3	LHC16i2b	3	16.4	FINAL QA	3.135	104.5
					HFE	pass3	LHC16i3b	2	11	FINAL QA	2.625	131.3
				HIJING peripheral	D2H	pass3	LHC16i2c	3	2.2	FINAL QA	3.173	105.8
					HFE	pass3	LHC16i3c	1	0.7	FINAL QA	1.054	105.4
				PYTHIA6	pT-hard	pass3	LHC16k4	20	2.4	10% QA	2.029	10.1
		UD		STARLIGHT		pass3	LHC16h9	120	2.4	FINAL QA	118.686	98.9
		GA		HIJING	$\pi^0 + \eta$	pass3	LHC16h4	3	10	FINAL QA	3.149	105.0
				HIJING	p_T-hard	pass3	LHC16h2a	6	81	FINAL QA	6.175	102.9
							LHC16h2a_bis	6	81	RUNNING	2.921	48.7
							LHC16h2a_rest	8		POSTPONED		
							LHC16h2b	6	33	FINAL QA	6.479	108.0
							LHC16h2b_bis	6	33	RUNNING	2.326	38.8
							LHC16h2b_rest	8		POSTPONED		
							LHC16h2c	6	4.5	FINAL QA	6.571	109.5
							LHC16h2c_bis	6	4.5	RUNNING	3.249	54.2
							LHC16h2c_rest	8		POSTPONED		
		DQ		HIJING	J/ψ → ee	pass3	LHC16j1	1.5	5	COMPLETED	1.601	106.7
		JE		PYTHIA8	p_T-hard	pass3	LHC16j5	20	2.4	FINAL QA	20.274	101.4
		CF		AMPT		pass3		1	3.3	NOT READY		0.0
LHC16k		DQ		PYTHIA	low mass ee		LHC16j4	24	2.4	FINAL QA	25.740	107.3
		HMTF		PYTHIA8	minimum bias		LHC16j2a1	180	18	RUNNING FULL	195.518	108.6
				EPOSLHC			LHC16j2b1	60	6	RUNNING FULL	63.934	106.6
				PYTHIA8	strangeness		LHC16i4a	20	2.0	FINAL QA	20.108	100.5
LHC16l		DQ		PYTHIA	low mass ee	pass1	LHC16j4a	12	1.2	FINAL QA	13.784	114.9
		HMTF		PYTHIA8	minimum bias	pass1	LHC16j2a2	50	5	FINAL QA	56.063	112.1
				EPOSLHC		pass1	LHC16j2b2	17	1.7	FINAL QA	17.130	100.8
				PYTHIA8	strangeness	pass1	LHC16i4b	10	1.0	FINAL QA	10.572	105.7

- **Almost 50 productions requested for QM**
  - **HUGE ACTIVITY**
- **All done but 1 production, postponed (AMPT for PWG-CF, code was not ready)**

DPG
ALICE • Data Preparation Group

Running productions

- **Running**:
  - Geant4
    - With old AliRoot → to compare to data
    - With new AliRoot → to test Geant4/AliRoot compatibility
  - GA production anchored to 15o with PYTHIA embedded jet-jet events

- **In standby:**
  - HF productions anchored to 16k, 16l (ALIROOT-7125)
    - In standby waiting for confirmation by requestors on the tag to use
  - DQ production anchored to 15n (ALIROOT-7153)
    - In setup phase, configuration being discussed with requestors
  - DQ production anchored to 16f (low-B) (ALIROOT-7130, ALIROOT-7156)
    - Waiting for DPG tag for CustomGenerator + general purpose MC for LHC16f (T0 OCDB update)

- **Done:**
  - GA production, extension of previous, anchored to 12c-l
  - MC anchored to pPb for ZDC studies

DPG ALICE • Data Preparation Group

Next Monte Carlo productions

- **General purpose p-Pb simulations**
  - Two cycles with two different event generators (EPOS-LHC, DPMJET)
  - Three productions per cycle, matching the 3 data reconstructions (CENT_wSDD, CENT_woSDD, FAST)
    - 3 (periods) x 3 (reco) x 2 (generators) = **18 productions**
    - **PWG-dedicated productions won't be split per period**
  - Waiting for new AliRoot tag (with new AOD variables) to restart it
- PWG input for next MC collected here

PWG	Status	Conference	Priority	Anchored data	Trigger cluster (for pPb 2016)	Monte Carlo description (generator, signals)	Events	Time (10K CPUs)	JIRA	Analysis
CF										
DQ		SQM/HEP/IS	high	LHC16q,t	FAST, CENT_wSDD	EPOS-LHC + injected J/psi	1.00E+07	1.3	ALIROOT-7151	J/psi production at mid-rapidity
DQ		SQM/HEP/IS	high	LHC16q,t	CENT_wSDD	EPOS-LHC + injected heavy flavor signals	5.00E+07	6.5	ALIROOT-7152	low mass dielectron at mid-rapidity
DQ		SQM/HEP/IS	high	LHC15n		PYTHIA6 + injected J/psi	5.00E+06	0.36	ALIROOT-7153	J/psi production at mid-rapidity (pp referer
DQ/HF/GA			high	LHC16f (low B field)		PYTHIA6 + injected heavy flavor signals	3.00E+07	2.5	ALIROOT-7130	low mass dielectrons, low pt D mesons, P
GA				LHC16q,t		Jet-Jet				pi0, eta
GA				LHC16q,t		Gamma-Jet				
GA				LHC16r,s		Jet-Jet				
GA				LHC16r,s		Gamma-Jet				
HF		SQM/EPS	high	LHC16q,t	FAST	HIJING + PYTHIA HFenriched (D mesons)	5.00E+07	9.1		D meson (RpPb, QpPb), D-h correlations,
HF		SQM/EPS	high	LHC16q,t	CENT_wSDD	HIJING + PYTHIA HFenriched (D mesons)	5.00E+07	9.1		D meson (RpPb, QpPb), D-h correlations,
HF		SQM/EPS	high	LHC16q,t	FAST	HIJING + PYTHIA HFenriched (HFe)	2.00E+07	3.6		HFe-h correlations, beauty HFe, HFe QpP
HF		SQM/EPS	high	LHC16q,t	CENT_wSDD	HIJING + PYTHIA HFenriched (HFe)	2.00E+07	3.6		HFe-h correlations, beauty HFe, HFe QpP
HF		SQM/EPS	high	LHC16q,t	CENT_woSDD	HIJING + PYTHIA HFenriched (D mesons, HFe)	1.00E+07	1.8		Cross check that analyses using CENTwo
JE			high	LHC16l		Jet-Jet				jet cross section
LF	code devel.	SQM/EPS	high	LHC11h	n/a	HIJING + injected nuclei, hyper nuclei and exotica	600k		ALIROOT-6795	hyper-triton in 3-body decay and searches
LF	started 10%	summer	normal	LHC16rs (p-Pb 8 TeV)	FAST, CENT_wSDD, CENT_woS	EPOS general purpose	50% of data		ALIROOT-7100	Spectra of strange (V0s), resonances and
LF	started 10%	summer	normal	LHC16rs (p-Pb 8 TeV)	FAST, CENT_wSDD, CENT_woS	DPMJET general purpose	50% of data		ALIROOT-7100	Spectra of strange (V0s), resonances and
LF		IS	normal	LHC16rs (p-Pb 8 TeV)	FAST, CENT_wSDD, CENT_woS	EPOS + injected multi-strange	tbd (O(1M))			Xi and Omega in p-Pb 8 TeV
LF		summer	normal	LHC16rs (p-Pb 8 TeV)	FAST, CENT_wSDD, CENT_woS	EPOS + injected nuclei	tbd (O(1M))			nuclei and exotica searches
LF		summer	normal	LHC16qt (p-Pb 5 TeV)	FAST, CENT_wSDD, CENT_woS	EPOS + injected nuclei	tbd (O(1M))			nuclei
LF		summer	normal	LHC16qt (p-Pb 5 TeV)	FAST, CENT_wSDD, CENT_woS	EPOS + injected exotica	tbd (O(1M))			exotica searches
LF		after summer	low	LHC15o and LHC15n	n/a	Standard + L* injected	tbd (O(1M))			L* analysis at 5.02 TeV in 15o --> joinable
UD										
HMTF										

Next Monte Carlo productions

- PWG-specific production always need a **General-Purpose MC** for *QA and validation of MC settings*
- Proposal to be discussed with PB:
  - Define default settings for Gen Purp MC (generator, sampling – minimum number of events to allow QA)
    - NB. Productions can always be extended at a later stage with more statistics if needed

PWG	Status	Conference	Priority	Anchored data	Trigger cluster (for pPb 2016)	Monte Carlo description (generator, signals)	Events	Time (10K CPUs)	JIRA	Analysis
CF										
DQ		SQM/HEP/IS	high	LHC16q,t	FAST, CENT_wSDD	EPOS-LHC + injected J/psi	1.00E+07	1.3	ALIROOT-7151	J/psi production at mid-rapidity
DQ		SQM/HEP/IS	high	LHC16q,t	CENT_wSDD	EPOS-LHC + injected heavy flavor signals	5.00E+07	6.5	ALIROOT-7152	low mass dielectron at mid-rapidity
DQ		SQM/HEP/IS	high	LHC15n		PYTHIA6 + injected J/psi	5.00E+06	0.36	ALIROOT-7153	J/psi production at mid-rapidity (pp referer
DQ/HF/GA			high	LHC16f (low B field)		PYTHIA6 + injected heavy flavor signals	3.00E+07	2.5	ALIROOT-7130	low mass dielectrons, low pt D mesons, P
GA				LHC16q,t		Jet-Jet				pi0, eta
GA				LHC16q,t		Gamma-Jet				
GA				LHC16r,s		Jet-Jet				
GA				LHC16r,s		Gamma-Jet				
HF		SQM/EPS	high	LHC16q,t	FAST	HIJING + PYTHIA HFenriched (D mesons)	5.00E+07	9.1		D meson (RpPb, QpPb), D-h correlations,
HF		SQM/EPS	high	LHC16q,t	CENT_wSDD	HIJING + PYTHIA HFenriched (D mesons)	5.00E+07	9.1		D meson (RpPb, QpPb), D-h correlations,
HF		SQM/EPS	high	LHC16q,t	FAST	HIJING + PYTHIA HFenriched (HFe)	2.00E+07	3.6		HFe-h correlations, beauty HFe, HFe QpF
HF		SQM/EPS	high	LHC16q,t	CENT_wSDD	HIJING + PYTHIA HFenriched (HFe)	2.00E+07	3.6		HFe-h correlations, beauty HFe, HFe QpF
HF		SQM/EPS	high	LHC16q,t	CENT_woSDD	HIJING + PYTHIA HFenriched (D mesons, HFe)	1.00E+07	1.8		Cross check that analyses using CENTwo
JE			high	LHC16l		Jet-Jet				jet cross section
LF	code devel.	SQM/EPS	high	LHC11h	n/a	HIJING + injected nuclei, hyper nuclei and exotica	600k		ALIROOT-6795	hyper-triton in 3-body decay and searches
LF	started 10%	summer	normal	LHC16rs (p-Pb 8 TeV)	FAST, CENT_wSDD, CENT_woS	EPOS general purpose	50% of data		ALIROOT-7100	Spectra of strange (V0s), resonances and
LF	started 10%	summer	normal	LHC16rs (p-Pb 8 TeV)	FAST, CENT_wSDD, CENT_woS	DPMJET general purpose	50% of data		ALIROOT-7100	Spectra of strange (V0s), resonances and
LF		IS	normal	LHC16rs (p-Pb 8 TeV)	FAST, CENT_wSDD, CENT_woS	EPOS + injected multi-strange	tbd (O(1M))			Xi and Omega in p-Pb 8 TeV
LF		summer	normal	LHC16rs (p-Pb 8 TeV)	FAST, CENT_wSDD, CENT_woS	EPOS + injected nuclei	tbd (O(1M))			nuclei and exotica searches
LF		summer	normal	LHC16qt (p-Pb 5 TeV)	FAST, CENT_wSDD, CENT_woS	EPOS + injected nuclei	tbd (O(1M))			nuclei
LF		summer	normal	LHC16qt (p-Pb 5 TeV)	FAST, CENT_wSDD, CENT_woS	EPOS + injected exotica	tbd (O(1M))			exotica searches
LF		after summer	low	LHC15o and LHC15n	n/a	Standard + L* injected	tbd (O(1M))			L* analysis at 5.02 TeV in 15o --> joinable
UD										
HMTF										

MC-to-MC embedding

- effort started to **setup, validate and put in production** MC-to-MC embedding
  triggered by Physics Coordination, global effort: ex PWGPP-mc + DPG + BTG
  aims at reducing CPU (disk?) usage for injected simulations
  goal: have it ready for 2018 Pb-Pb campaign

- **standard** MC production chain
  Signal+Background: Gen → Hits → SDigits → Digits → RecPoints → ESDs

- **embedding** MC production chain
  Background: $Gen_B \rightarrow Hits_B \rightarrow SDigits_B$
  Signal: $Gen_S \rightarrow Hits_S \rightarrow SDigits_S$
  merging: $SDigits_B + SDigits_S \rightarrow Digits \rightarrow RecPoints \rightarrow ESDs$

- CPU **time estimates** for embedding (rough)
  if same bkg event is reused N times, expected CPU reduction is ~ 1/N + 0.25 (~1/4 limit for large N)
  tests show 0.18 with N ~ 10 (misses QA and AOD, very preliminary, though in the ballpark)

- **status**
  large amount of work previously done by PWGPP-mc, integrated in AliDPG
  overall, the embedding framework is working, although several issues to be fixed

See Ruben's talk tomorrow

Possible embedding strategies

- **local** merging
  all done in the same GRID job
  generate 1 background event (only simulation)
  generate N signal events and merge to the same background
  - 👍 no need to write SDigits to AliEn (save disk)
  - 👍 no I/O via network (save time)
  - 👍 no need to chance the LPM scheme
  - 👎 background event is lost, cannot be used
  - 👎 reuse factor cannot be too large (physics)
  - 👎 background used by only one PWG client

implemented in AliDPG
tests are running

- **global** merging
  create a pool over background events
  SDigits to be reused for several productions
  generate N signal events and merge to the same background
  - 👍 reuse factor can be large (closer to 1/4 limit)
  - 👍 can be used by more PWGs
  - 👍 no need to chance the LPM scheme
  - 👎 needs to write SDigits to AliEn (more disk)
  - 👎 complex workflow on the LPM
  - 👎 large I/O over network
  - 👎 AliRoot/AliPhysics matching between background and signal

- **Needs more discussion on how to setup the LPM chain**
- **Can be combined with "local" merging**

DPG ALICE • Data Preparation Group

Towards 2017 data taking: calibration needs

- **TPC calibration**
  - For every field polarity we need low and high intensity runs before going to standard CPass
    - Each run with at least 2 M tracks (~30 mins for pp); low (~10 kHz) and high IR (~120 kHz)
- **Detector alignment**
  - Main goal: try to remove the bias seen in the impact parameter
  - Statistics: cosmics can be used, but also beam data are needed
    - Central Barrel:
      - With full ITS, TPC, TRD and TOF in the readout
        - » Cosmics: ~50M of back-to-back triggers (C0OB3) for B+,B- and B0 each (the trigger rate w/o ITS in the trigger ~90Hz -> 1 week of running @ 100% eff per polarity)
        - » pp data: ~10M pp triggers at IR<20kHz for B+ and B- each. B0 preferable also
    - MUON:
      - Cosmics with MTR trigger
  - The alignment procedure takes ~1 month for data filtering and analysis
  - The data collected until the new alignment is available will need a new ppass
- **Others**
  - AD cosmics + HV scan in quiet beam with collisions

DPG
ALICE • Data Preparation Group

Towards 2017 data taking: improved HLT Cluster Finder

- Improvements in the **TPC cluster finding** and **data compression** in the **HLT** for the 2017 data taking
- New cluster finder implemented in software
  - FPGA implementation ongoing
  - Tested on 2015 low-intensity data
- New features
  - ***Improved rejection of noise clusters*** heavily seen in 2016, maintaining the current physics performance
    - Performance could indeed slightly improve, because noise clusters could disturb tracking
  - ***Improved compression algorithm*** using track model compression, data format improvement, arithmetic encoding
    - Ongoing
- Additional benefits:
  - Split cluster flag available, to be used for improved dE/dx calculation
  - HLT tracks can be used as seeds for offline, reducing memory footprint and computing time

More in Mikolaj's talk later today and in Reconstruction session tomorrow

DPG
ALICE • Data Preparation Group

Analysis QA

- **GOAL(s)**:
  - check quality of the data (real and simulated) for physics analysis
  - verify stability of results after changes in AliPhysics/OADB
  - spot issues which can be relevant for analyses of different PWGs
- In Run-1 this was done (also) using AnalysisQA lego train(s)
  - Not used regularly since quite some time
- For QM, the **AnalysisQA** was dealt with cross-PWG **meetings** on **Friday morning**, which will **continue**
  - Very useful to define event selection cuts, track selection criteria…
- Ongoing effort to:
  - Put **back in operation** the **AnalysisQA lego train**
  - Discussion and (re)definition with PWGs of the goals and possible updates of this AnalysisQA tlego rain

Analysis QA lego train

- Used in Run1 to launch simple analysis QA checks provided by each PWG
  - E.g. electron identification plots, invariant mass distributions …
  - Simple (and automatized) analysis macro+script to spot issues
- Put back in operation the AnalysisQA lego train (JIRA: PWGPP-281)
  - *First phase*: inventory and test of existing wagons (traced in google sheet)
    - Confirm wagons that are OK and update those that need modifications (PWGs, **ongoing**)
    - Remove obsolete and duplicated wagons (**ongoing**)
    - Run some test trains (one per collision system) and verify the output files
  - *Second Phase*: update macro and script for automatized checks and plots

1	**LEGO TRAIN: AnaysisQA_AOD**								
2									
3	**Wagon**	**PWG/DET**	**RESPONSIBLE**	**Task**	**OK / CRASH**	**UP2DATE / OBSOLETE / NEEDMODIF**	**COLLISION SYSTEM: pp / p-Pb / Pb-Pb**	**DATA / MC / BOTH**	**Output size, TH1, TH2, THnSparses**
63	**Group pPb_Data**								
64	CF_Femto_pPb	CF	maszyman		OK				
65	GA_Pi0GammaCorr_EMCAL_pPb_EMCAL_Data	GA	gconesab		OK				
66	GA_Pi0GammaCorr_EMCAL_pPb_MB_Data	GA	gconesab		OK				
67	HF_HFEemcQA_pPb	HF	ssakai			UP2DATE	pPb		
68	HF_QADmeson_pPb	HF	zconesa				pPb, PbPb 2015	data	TH1, TH2
69	LF_pPb_HighPtDeDx_AOD	LF	dcolella		CRASH	* OBSOLETE			
70	LF_pPb_Multistrange_AOD	LF	dcolella		OK	UP2DATED	p-Pb	Data	
71	LF_pPb_Resonances_AOD	LF	dcolella		OK	* NEED MODIFI(	p-Pb	Data	
72	LF_pPb_V0_AOD	LF	lramona		OK	UP2DATED	p-Pb	Data	

AliDPG package: News

- **Data:**
  - CPass0, CPass1, PPass moved to and taken from AliDPG in production
    - New JDL tag to allow to recognize the different passes – especially useful for muon_calo pass (with different AOD train)
  - Still missing:
    - Merging of calibration trees (FilteredTrees, ResidualTrees, TOF tree, T0 tree), QA and AODs
    - Integrate with Release Validation
- **Monte Carlo:**
  - New directory *AliDPG/MC/CustomGenerators* with subfolders per PWG to allow people to commit (through pull-requests) their custom generators without touching the “central” configuration, and being under a version-controlled system

DPG
ALICE • Data Preparation Group

AOB
coming down the pike

- From the CB we received the suggestion to implement a test facility to test the several PWG-specific generator configuration
  - Overlap with QA tools?
- Service tasks (6 months FTE)
  - Many opportunities in the DPG
    - QA tools, AOT, MC testing
    - **Please (students, team leader, detector responsibles…) contact us (with your CV) if interested!**
- QA train on AOD at production time
  - Tracking-QA task (including checks on AOD-track filter bits)
  - Check physics selection and centrality information stored in AODs
  - Verify contents and integrity of delta-AODs
  - …

  → Feedback on this would then be needed as for the detector QA when no (semi)automatic check possible

DPG
ALICE • Data Preparation Group

Summary

- DPG is **working on the next goals**, after QM campaign
  - Manpower always welcome!
- New **tools provided to the analyzers** to understand and deal with the data
  - New Twiki's always available (not mentioned here)
- Data **reconstruction** will focus on **2016 and 2015 pp data samples** till 2017 data taking starts
  - QA activities will be very high – need responsive and well-organized QA experts
- **Monte Carlo** focusing on p-Pb and pp simulations for next conferences
- Development of **MC-to-MC embedding** targeted at next Pb-Pb campaign
- Preparation of **2017 data taking** ongoing
- **QA tools** will be summarized in this session (next talks)
- **AOT** activities continue to develop
  - Not presented here, but details will be given in the DPG plenary session at the next mini-week (Apr 4)

BACKUP