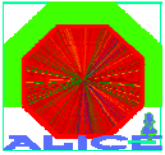


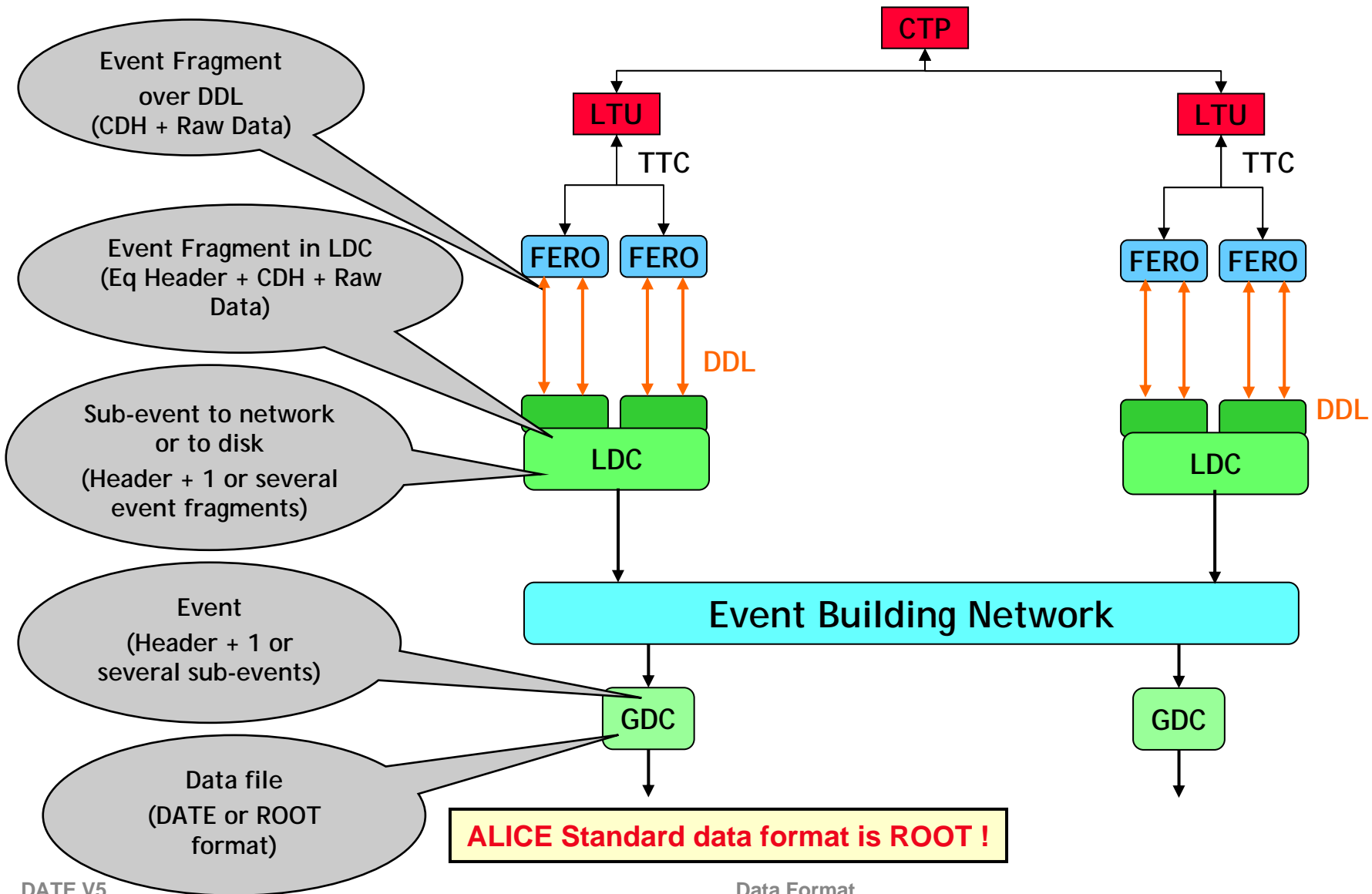
Raw Data Format in the DAQ

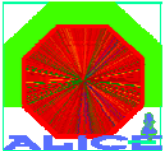
Franco CARENA
CERN PH-AID

ALICE Offline
October 2006

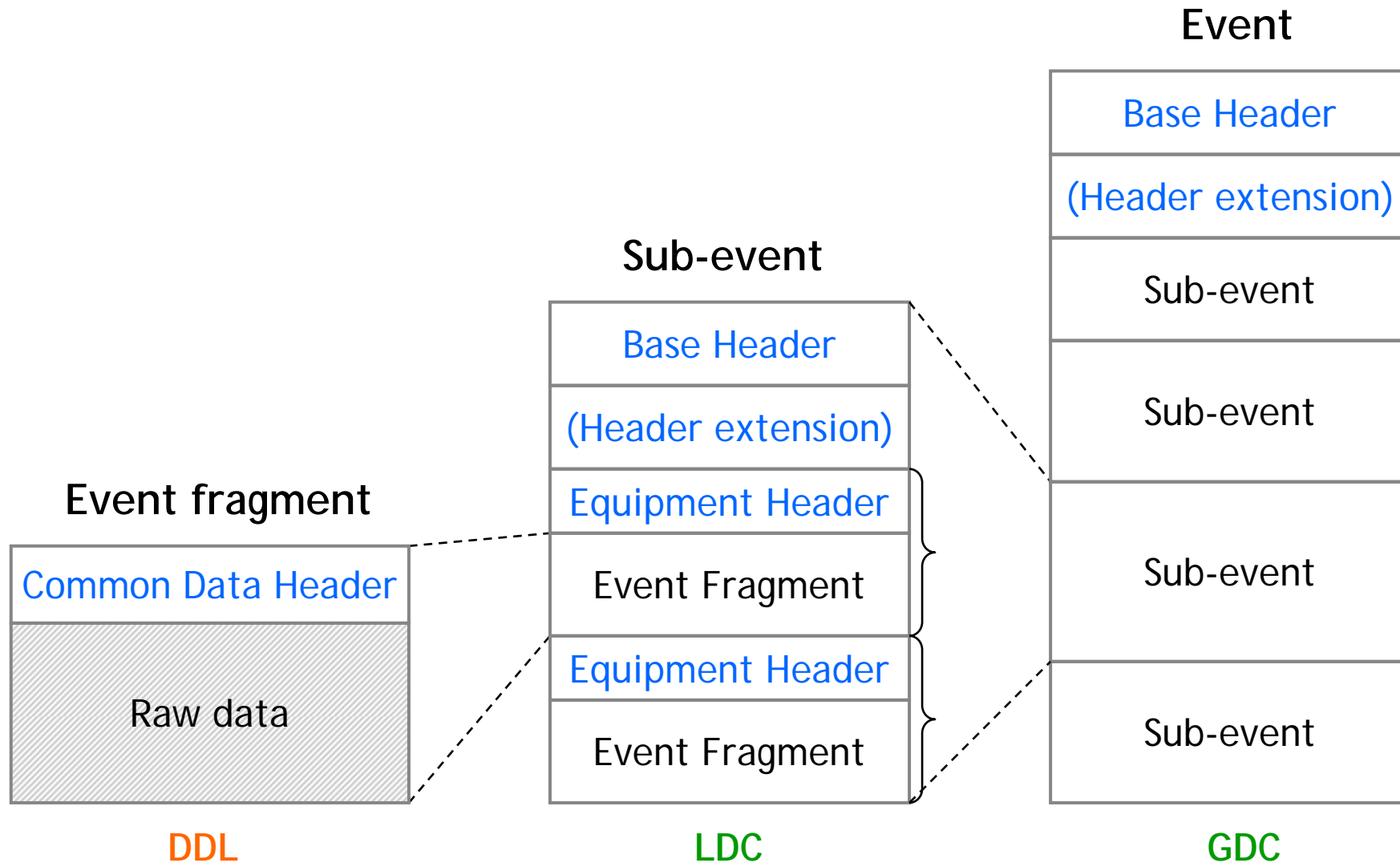


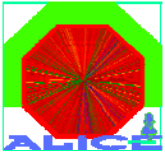
Raw data formatting in the DAQ





Event Logic Structure





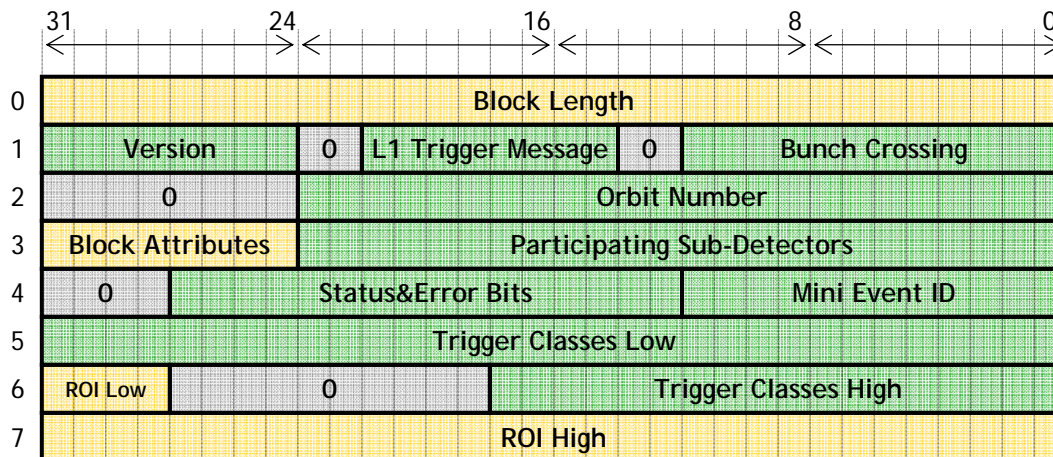
Common Data Header



The Common Data Header (CDH) needs to be generated by the detector electronics together with the Trigger System and transmitted over the DDL (first 8 words of each fragment).

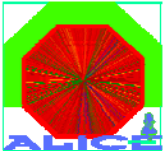
“Data Format over the ALICE DDL”, ALICE-INT-2002-010 V10.0

Version = 2 !



CDH Format

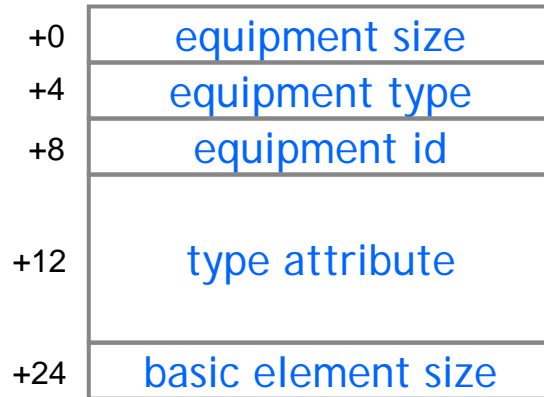
- Mandatory
- Optional
- Must be zero



Equipment Header



(28 bytes)



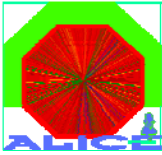
equipment header + fragment size

equipment type (RORC)

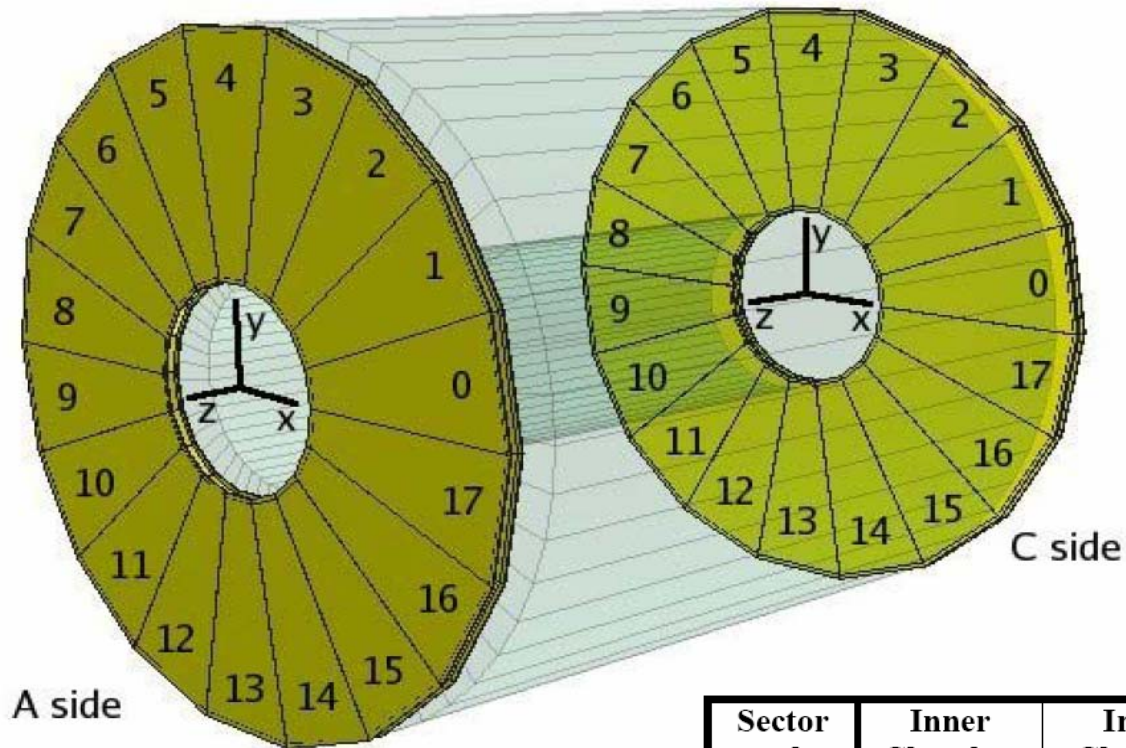
equipment id



Detector identifier	Detector name	Detector identifier	Detector name
0	ITS SPD	10	Muon TRK
1	ITS SDD	11	Muon TRG
2	ITS SSD	12	FMD
3	TPC	13	T0
4	TRD	14	V0
5	TOF	15	ZDC
6	HMPID	16	ACORDE
7	PHOS	17	TRG
8	CPV	18	EMCal
9	PMD	19	HLT
[20 .. 30]: reserved for future use			
31	DAQ_TEST		

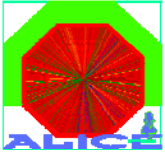


DDL Index (Detector Dep.)



DDL Links identifiers (Side A)

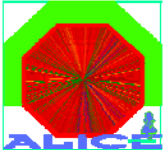
Sector number	Inner Chamber (most inner partition)	Inner Chamber	Outer Chamber	Outer Chamber	Outer Chamber	Outer Chamber (most outer partition)
0	0	1	72	73	74	75
1	2	3	76	77	78	79
2	4	5	80	81	82	83



LDC/GDC Header



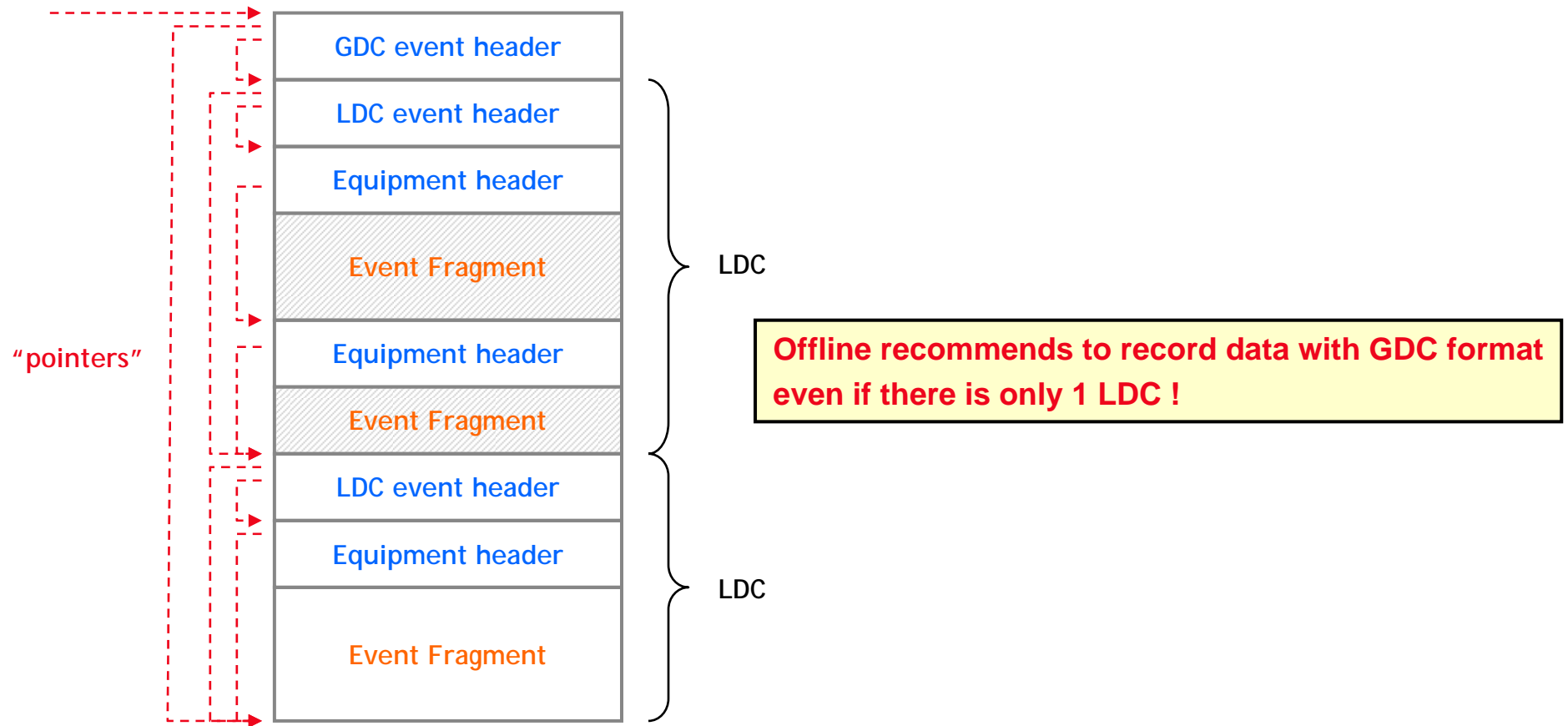
+0	event size	total size in bytes
+4	event magic	
+8	event header size	68 bytes + extension
+12	event version	
+16	event type	
+20	event run number	
+24	event id	period + orbit + bunch crossing
+32	event trigger pattern	derived from the L2a message
+40	event detectors pattern	derived from the L2a message
+44	type attribute	flags
+56	event LDC id	
+60	event GDC id	
+64	eventTimestamp	time()

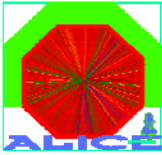


Event Format



GDC with 2x LDCs





Format Selection in DAQ



File View Options Windows Status updated

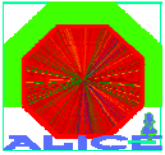
HMPID
DAQ - Run Control
HI running on pcald21 with PID 5528
RC running on pcald21 with PID 5201

Disconnected Configuration	< >	Connected Run Parameters	< >	Ready to start	Data Taking
Define		Define		Start processes	Start
Show		Show		<input type="checkbox"/> AFFAIR <input type="checkbox"/> EDM <input checked="" type="checkbox"/> GDC	Stop
				HLT mode A: DAQ only v	Abort
				Recording on PDS v	

RUN NUMBER : 5635 Run Control Status : READY

Switch on event-building in order to have data formatted with GDC format

Switch on recording on PDS in order to start the recording program in ROOT format.



Format Selection in ECS



File View Options Permissions

MUON_TRK
Detector Control Agent
HI running on pcald21 with PID 31456

DCA

STANDALONE_RUN
PEDESTAL_RUN
ELECTRONICS_CALIBRATION_RUN

RUN number:

Parameters and Options

HLT mode A: DAQ only Event building ON Recording on PDS

Access rights granted to the DCA

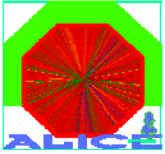
HLT DETECTOR DAQ_RC LTU

OFF READY DISCONNECTED STANDALONE_STOPPED

DCA info: 09:39:20: HLT is locked by DOMAIN: MUON_TRK_DCA

Switch on event-building in order to have data formatted with GDC format

Switch on recording on PDS in order to start the recording program in ROOT format.



Conclusion



- ❑ Everything is crystal clear !

- ❑ References:
 - “Data Format over the ALICE DDL”, ALICE-INT-2002-010 V10.0
 - ALICE DAQ and ECS User’s Guide, ALICE-INT-2005-015
 - Identification of DDL links in ALICE data, ALICE-INT-2006-???