

Online Event Dump Program

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Aim

Investigating the event dump component of the online software with the aim of customizing it to display event fragments in a comprehensible way.

Online Event Dump

- **Maintained** by Mikhail Mineev (mineev@jinr.ru)
- **Provides** some general components to render fragment data through the use of drop down menus, trees and tables.

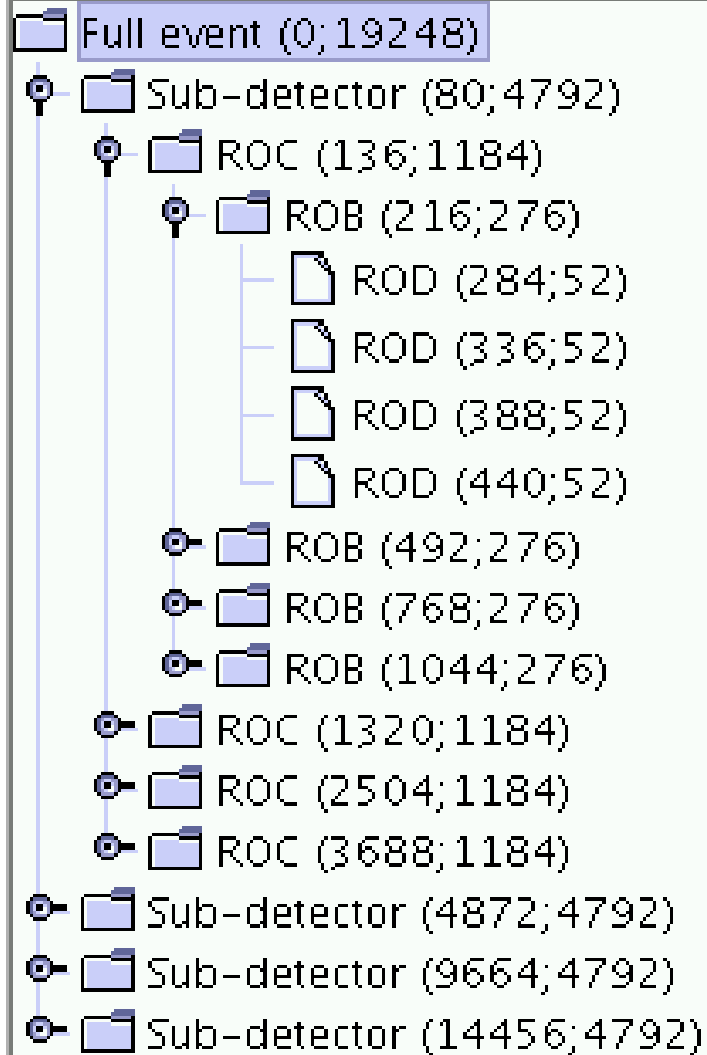
What Already Exists...

- **ScrollPanels** Tree View of the event, Full dump of data fragments, user-defined panels

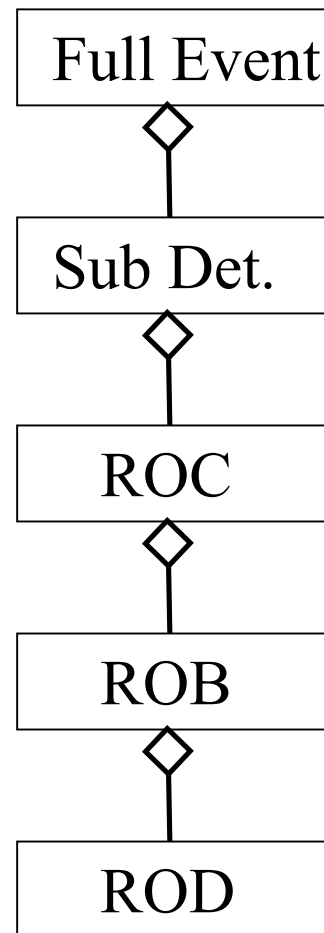
The screenshot shows a window titled "Event Dump" with a menu bar (File, Option, Help) and a tree view on the left. The tree view shows a "Full event (0;19248)" folder containing four "Sub-detector" folders with their respective IDs. The main area displays the "Full Event" details, including a header section with markers and sizes, and a source identifier section with various IDs. Below this is a table with tabs for "Standard", "UC no 1", "UC no 2", and "UC L1Calo". The "Standard" tab is active, showing a table with columns A through J and rows 0 through 8.

	A	B	C	D	E	F	G	H	I	J
0	aaaaa...	4b30	50	1	e056f	1	1	4	1000...	1100...
1	2000...	2100...	7	0	dead	0	0	7b	0	0
2	bbbb...	12b8	38	1	100e...	1	1	4	e	1000...
3	2000...	3000...	1	7b	ccccccc	4a0	50	1	1000...	4
4	1	2	3	4	4	14	1000...	2000...	3000...	4
5	dead	0	0	0	dddd...	114	44	1	1000...	1
6	f0	4	11	1000...	2000...	3000...	4	0	0	7b
7	141	eeee...	20	1	1000...	0	0	7b	141	ff
8	0	1	1	0	eeee...	20	1	1000...	0	0
9	7b	141	ff	0	1	1	0	eeee	20	1

What Already Exists...



Atlas-UK Level 1 Calorimeter Trigger



- Tree provides an effective representation of the data structure such as fragment aggregation

Standard Display Panels

	Standard	UC no 1	UC no 2	UC L1Calo							
	A	B	C	D	E	F	G	H	I	J	
0	cccccccc	4a0	50	1	10000404	4	1	2	3	4	
1	4	14	1000059	200009e	30000e3	4	dead	0	0	0	
2	dddddddd	114	44	1	10000200	1	f0	4	11	100001e	
3	200002b	3000038	4	0	0	7b	141	eeeeeeee	20	1	
4	10000900	0	0	7b	141	ff	0	1	1	0	
5	eeeeeeee	20	1	10000901	0	0	7b	141	ff	0	
6	1	1	0	eeeeeeee	20	1	10000902	0	0	7b	
7	141	ff	0	1	1	0	eeeeeeee	20	1	10000903	
8	0	0	7b	141	ff	0	1	1	0	dddddddd	
9	114	44	1	10000201	1	f0	4	11	100001e	200002b	
10	3000038	4	0	0	7b	141	eeeeeeee	20	1	10000900	
11	0	0	7b	141	ff	0	1	1	0	eeeeeeee	
12	20	1	10000901	0	0	7b	141	ff	0	1	
13	1	0	eeeeeeee	20	1	10000902	0	0	7b	141	
14	ff	0	1	1	0	eeeeeeee	20	1	10000903	0	
15	0	7b	141	ff	0	1	1	0	dddddddd	114	
16	44	1	10000202	1	f0	4	11	100001e	200002b	3000038	
17	4	0	0	7b	141	eeeeeeee	20	1	10000900	0	
18	0	7b	141	ff	0	1	1	0	eeeeeeee	20	
19	1	10000901	0	0	7b	141	ff	0	1	1	
20	0	eeeeeeee	20	1	10000902	0	0	7b	141	ff	
21	0	1	1	0	eeeeeeee	20	1	10000903	0	0	
22	7b	141	ff	0	1	1	0	dddddddd	114	44	
23	1	10000203	1	f0	4	11	100001e	200002b	3000038	4	
24	0	0	7b	141	eeeeeeee	20	1	10000900	0	0	
25	7b	141	ff	0	1	1	0	eeeeeeee	20	1	
26	10000901	0	0	7b	141	ff	0	1	1	0	
27	eeeeeeee	20	1	10000902	0	0	7b	141	ff	0	
28	1	1	0	eeeeeeee	20	1	10000903	0	0	7b	
29	141	ff	0	1	1	0					

Easy to identify header markers

ROC cccccccc

ROB dddddddd

ROD eeeeeeee

Nothing provided to unpack data words

Pros and Cons

- **Desirable Features** data organized in a tree hexadecimal/binary format supported
 - **Undesirable Features**
 - full event dump can be rather long and difficult to read.
 - Hard to find the information you want.
 - It does not know how to render L1Calo Event Data!
- ... a need to provide our own customized user panel

Starting Point

- **Technical Information Node**
A Compendium of Data Formats (Draft 0.5) C.N.P.Gee
- **List of Requirements**
Meeting with Norman, Bruce and Murrough
- **ROD Data Fragment from the test setup**
Murrough

List of Requirements

- Shall support different kinds of ROD fragments
 - * CPM DAQ S-Link to ROS
 - * JEM DAQ S-Link to ROS
 - * CMM Cluster DAQ S-Link to ROS
 - * CMM JET DAQ S-Link to ROS
 - * CMM Energy DAQ S-Link to ROS
 - * RoI (several formats CTPD and RoIB)
- Shall support different formats/versions in a transparent way

List of Requirements

- Shall provide a visual representation of ROD data fragments

- * employ TREES and TABLES to group related trigger tower data, threshold hit information and sub-status data into slices.

- Shall provide a treatment for malformed fragments

- * colour schema to highlight bogus bits

- Shall provide printing features

- * text dump, graphical dump, create postscript output

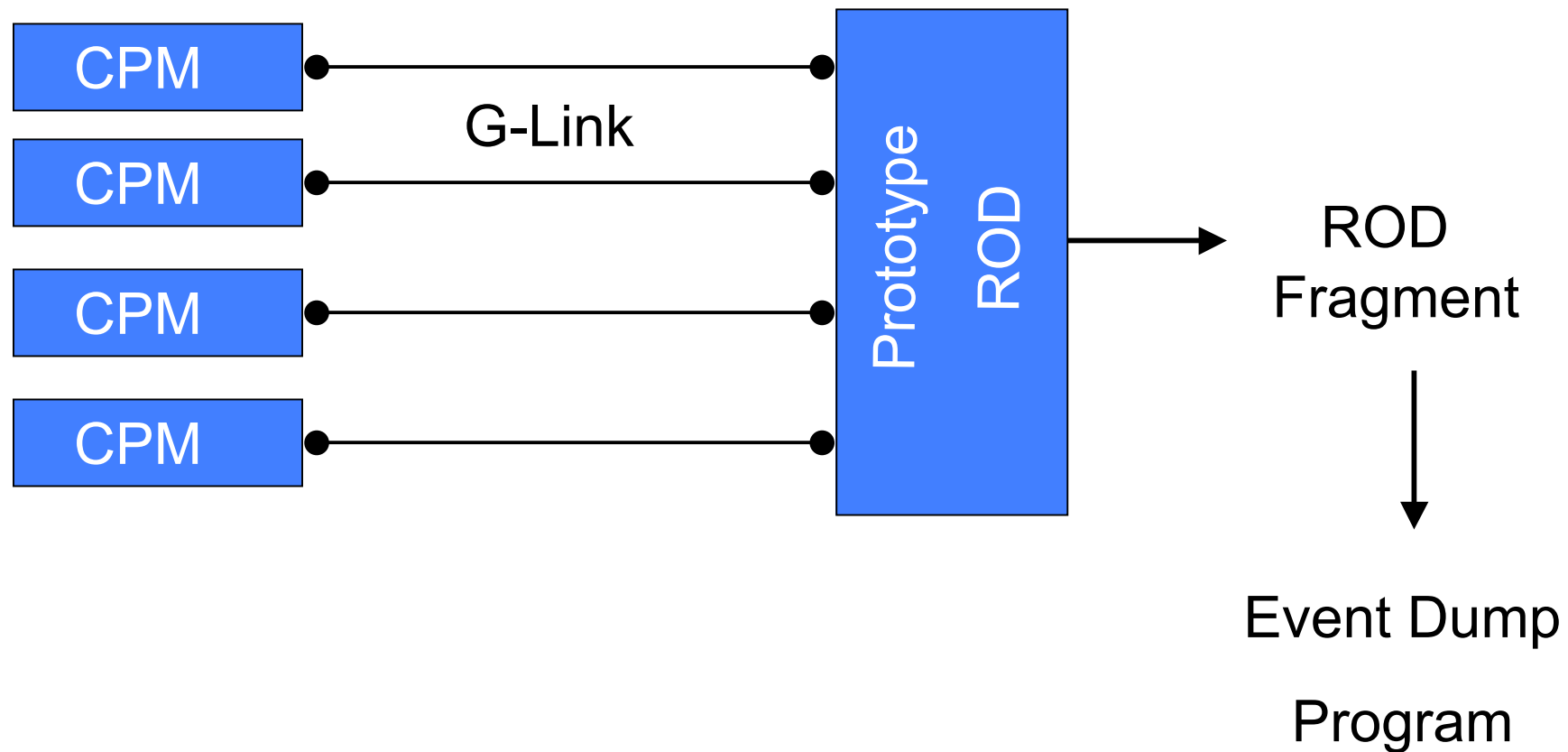
List of Requirements

- Shall be a user-guide/manual

<http://hepwww.ph.qmul.ac.uk/~kant/atlas/>

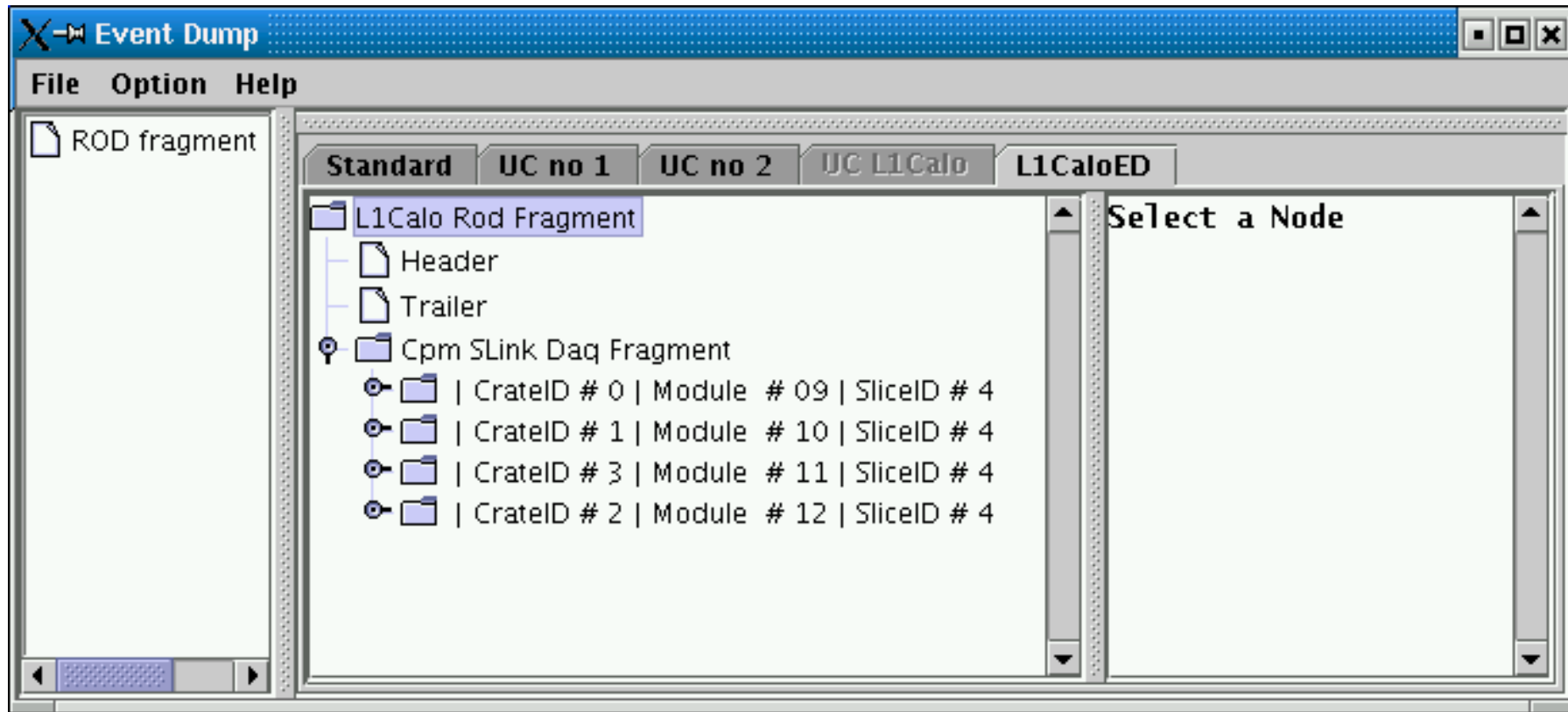
Prototype ROD Data Fragment

Basically four CPM modules feed data into a ROD



L1CaloED Panel

- Included our own panel called “L1CaloED”



ROD fragment identified as a CPM DAQ S-Link Fragment containing 1 slice for each of the 4 modules.

L1CaloED Panel

The screenshot shows the 'Event Dump' application window. The 'L1CaloED' tab is active, displaying a tree view of ROD fragments and a detailed header information table.

Tree View:

- L1Calo Rod Fragment
 - Header
 - Trailer
 - Cpm SLink Daq Fragment
 - | CrateID # 0 | Module # 09 | SliceID # 4
 - Trigger Tower Fragment
 - Threshold Data Fragment
 - Sub Status Fragment
 - | CrateID # 1 | Module # 10 | SliceID # 4
 - Trigger Tower Fragment
 - Threshold Data Fragment
 - Sub Status Fragment
 - | CrateID # 3 | Module # 11 | SliceID # 4
 - Trigger Tower Fragment
 - Threshold Data Fragment
 - Sub Status Fragment
 - | CrateID # 2 | Module # 12 | SliceID # 4
 - Trigger Tower Fragment
 - Threshold Data Fragment
 - Sub Status Fragment

Header Information:

Header:	
Header Marker	= eeeeeeee
Size of Header	= 8
Header Format Version	= 1
8b SubDet_ID	= 71
8b ROC_ID	= 0
8b Module Type	= 0
8b Module ID	= 0
8b ECR_Count	= 0
24b ROD_L1ID	= 1
8b ROD_BCID	= 1
8b L1Type	= 1
Det. Event Type (0)	= 0

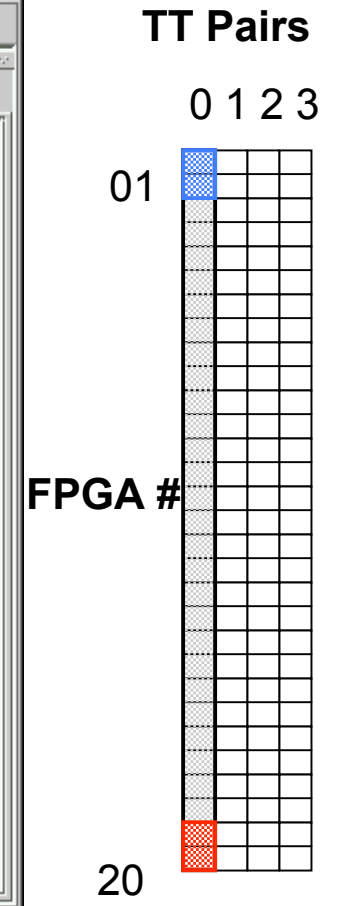
Navigate through the ROD fragment (event driven)

Header information decoded in human readable form

L1CaloED Panel

ModuleID = 9 => eta [0.4,0.8] (16+4)*4*2 Trigger Towers

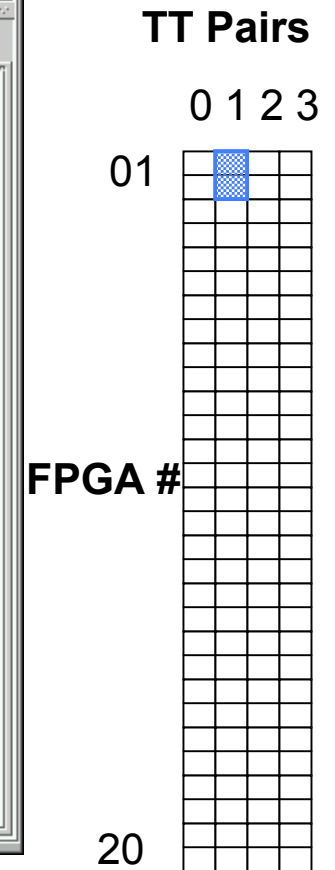
FPGA	TT	PL	CL	DATA_0	DATA_1
01	0	0	0	254	255
02	0	0	0	246	247
03	0	0	0	238	239
04	0	0	0	230	231
05	0	0	0	222	223
06	0	0	0	214	215
07	0	0	0	206	207
08	0	0	0	198	199
09	0	0	0	190	191
10	0	0	0	182	183
11	0	0	0	174	175
12	0	0	0	166	167
13	0	0	0	158	159
14	0	0	0	150	151
15	0	0	0	142	143
16	0	0	0	134	135
17	0	0	0	126	127
18	0	0	0	118	119
19	0	0	0	110	111
20	0	0	0	102	103



L1CaloED Panel

The screenshot shows the 'Event Dump' application window. The 'L1CaloED' panel is active, displaying a table of data. The table has columns for FPGA, TT, PL, CL, DATA_0, and DATA_1. A blue arrow points to the 'FPGA' column header.

FPGA	TT	PL	CL	DATA_0	DATA_1
09	0	0	0	190	191
10	0	0	0	182	183
11	0	0	0	174	175
12	0	0	0	166	167
13	0	0	0	158	159
14	0	0	0	150	151
15	0	0	0	142	143
16	0	0	0	134	135
17	0	0	0	126	127
18	0	0	0	118	119
19	0	0	0	110	111
20	0	0	0	102	103
01	1	0	0	252	253
02	1	0	0	244	245
03	1	0	0	236	237
04	1	0	0	228	229
05	1	0	0	220	221
06	1	0	0	212	213
07	1	0	0	204	205
08	1	0	0	196	197
09	1	0	0	188	189



Pending Data Requests

- An SLink CPM data fragment with only 1 slice per CPM
- An SLink CPM data fragment with multiple slices per CPM
- A CPM ROI data fragment
- An SLink JEM data fragment
- An SLink CMM jet data fragment
- An SLink CMM energy data fragment
- An SLink CMM cluster (e/gamma) fragment

Conclusions

- A customized user code panel under development
- Initial implementation supports CPM fragments
- Keen to extend the implementation but need other types of ROD fragments
- Comments/Suggestions welcome!