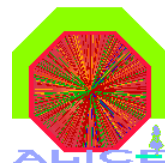


# Report from TRD on Raw Data

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ALICE Offline Week, October, 2006



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**ALICE**  
Großgeräte der physikalischen  
Grundlagenforschung

# Detector Commissioning

- No TRD test beams planned with complete super modules
- Cosmics calibration before insertion of a super module
  - 1<sup>st</sup> complete super module being analysed right now with cosmics → first real raw data
- Responsible persons for TRD DAQ:
  - Until now:  
David Emschermann  
([demscher@physi.uni-heidelberg.de](mailto:demscher@physi.uni-heidelberg.de))
  - Ken Oyama
  - MinJung Kweon
  - ...



# DDL/Equipment ID Mapping

- Mapping was communicated to offline group:

[http://alice.uni-hd.de/daq/more/TRD\\_DDL\\_equipment\\_IDs.txt](http://alice.uni-hd.de/daq/more/TRD_DDL_equipment_IDs.txt)

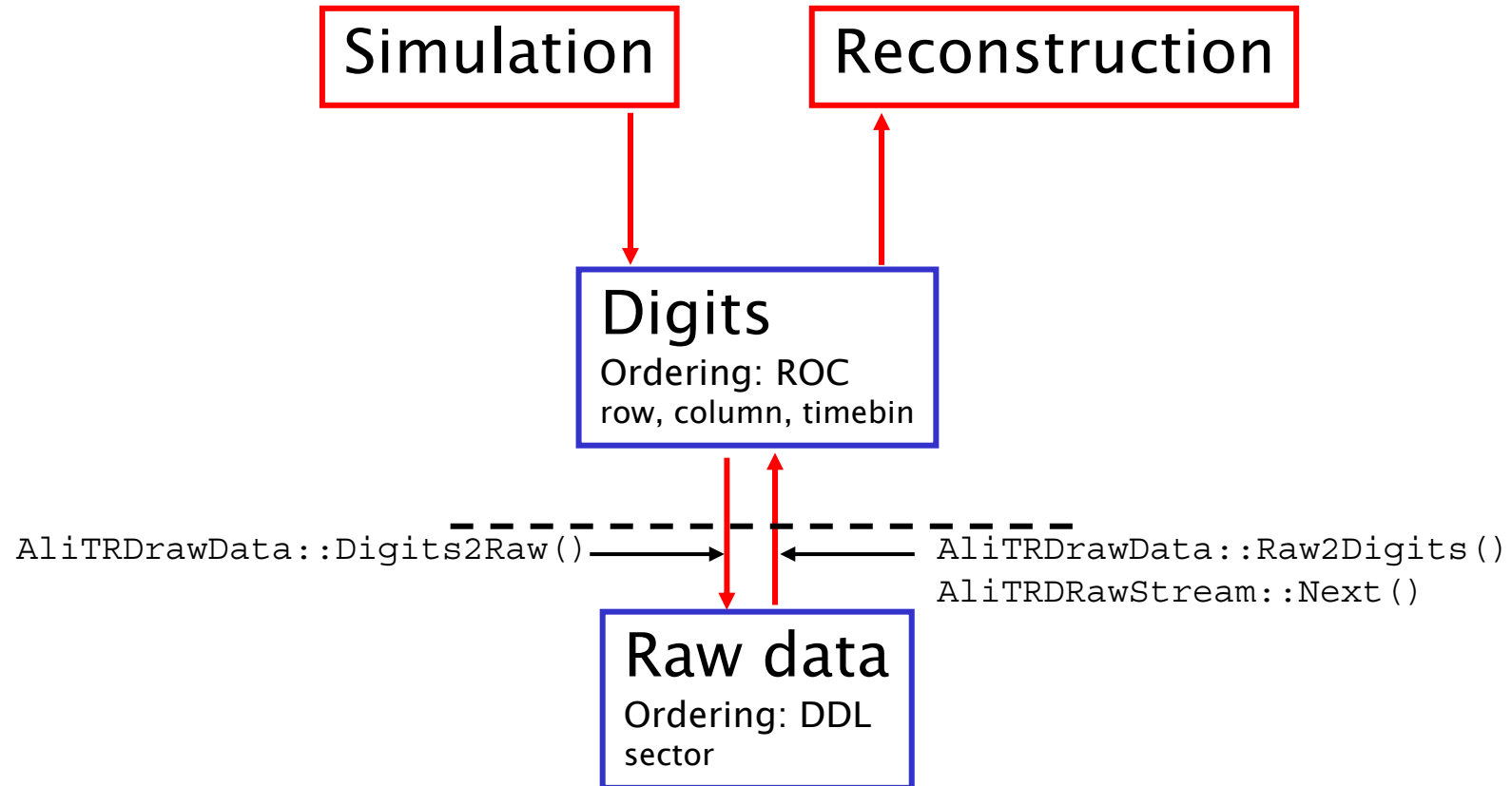
```
Space
Frame
Sector  DDL index  EquipID
00      00         1024
01      01         1025
02      02         1026
03      03         1027
04      04         1028
05      05         1029
06      06         1030
07      07         1031
08      08         1032  (<- this will be the 1st SM installed)
09      09         1033
10      10         1034
11      11         1035
12      12         1036
13      13         1037
14      14         1038
15      15         1039
16      16         1040
17      17         1041
```

- Geometrical mapping inside DDL:
  - Is currently being defined
  - Should be available soon

# Raw Data Reconstruction + Simulation

- Raw data implementation: `AliTRDrawData`
- Methods:
  - `AliTRDrawData:Digits2Raw()` ;  
Converts digits tree into raw data format
  - `AliTRDrawData:Raw2Digits()` ;  
Converts raw data into digits arrays
- Raw data streaming: `AliTRDRawStream`
  - Method: `AliTRDRawStream::Next()`
  - Reads raw data via `AliRawStream`

# Raw Data Reconstruction + Simulation



- No real preprocessing required.
  - Remapping of data  
DDL (sectors) ↔ ROC (row, column,timebin)

# Raw Data Reconstruction + Simulation

- Status right now:

- Mock-up version of raw data in  
`AliTRDrawData::Digits2Raw()`

- Run-length encoded (zero-suppressed)

```
//          DDL data header
//
//          Subevent (= single chamber) header (8 bytes)
//          FLAG
//          Detector number (2 bytes)
//          Number of data bytes (2 bytes)
//          Number of pads with data (2 bytes)
//          1 empty byte
//
//          Data bank
```

- Needs to be adapted to “real” raw data format:  
`AliTRDrawData::Digits2Raw()` and  
`AliTRDRawStream::Next()`

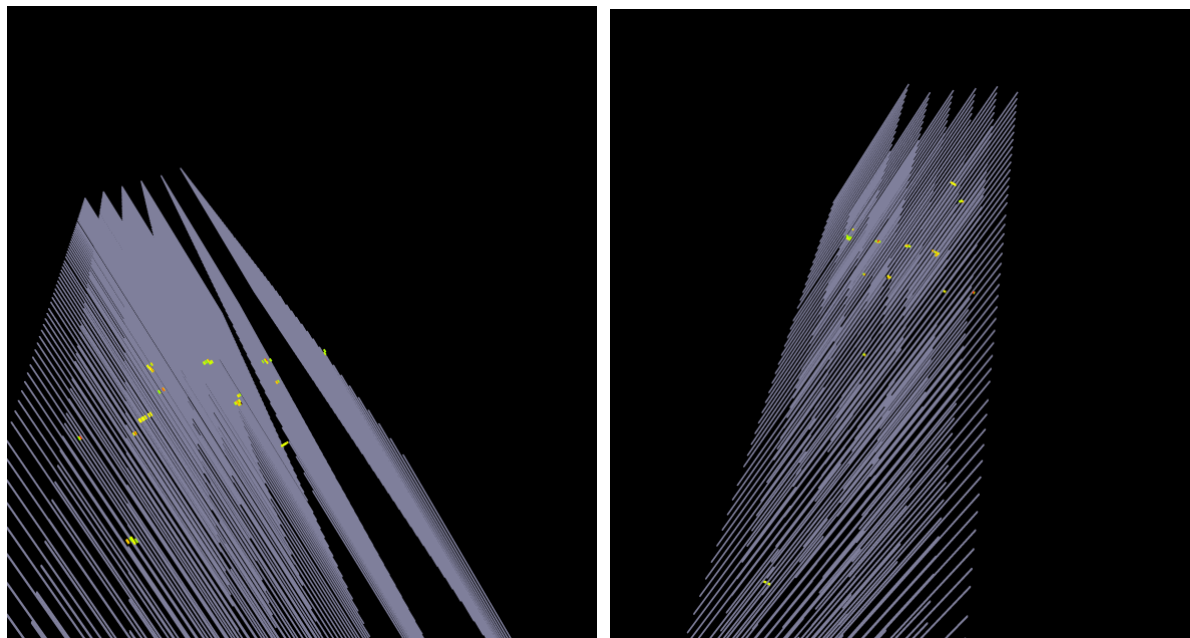
- Final GTU raw data format currently being defined

- 1<sup>st</sup> GTU data available now

## Visualisation

- Simple module in EVE to visualize TRD raw data existing (MinJung Kweon)
  - Based on digits
  - Requires final raw data format to be included in AliRoot
  - Will go to CVS soon

Cosmics data  
from 1<sup>st</sup>  
super module



## Other Topics

- All dependencies on `gAlice` (`AliRun`) now removed from TRD reconstruction
- `Raw2Digits()`: Implemented in `AliTRDrawData`.
  - `Raw2SDigits()` easy to do



# Milestones

## COMISSIONING:

Provide commissioning schedule and persons in charge of DAQ and data analysis

DATE: 15-Oct-06

## HARDWARE MAPPING:

Provide DDL to equipment ID mapping

DONE

Comments: [http://alice.uni-hd.de/daq/more/TRD\\_DDL\\_equipment\\_IDs.txt](http://alice.uni-hd.de/daq/more/TRD_DDL_equipment_IDs.txt)

Provide geometrical mapping

DATE: 15-Oct-06

## RECONSTRUCTION:

Status of raw-data reconstruction

DONE

Removal of dependencies on AliRun

DONE

## SIMULATION:

Status of raw-data format

DATE: 31-Oct-06

Implement Raw2(S)Digits for event embedding

DONE

## VISUALISATION:

Raw data visualisation within the aliroot event display (EVE)

DATE: 31-Oct-06