VdM scan
(& bunch-by-bunch luminosity monitoring)
in RUN-3

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b-by-b Lumi Monitoring Using DDL1/DDL2
Interaction Records from CTP in RUN2

• Provided:
  - on-line bunch-by-bunch luminosity and spec. luminosity (DDL2 channel)
  - some DIP services requested by LHC
  - DIM services for housekeeping and archiving purposes
  - Massi Files : b-by-b luminosity and spec. luminosity
  - Readout for VdM scans:
    • DDL1 data from luminosity monitoring (archived info) (the only use of DDL1 by b-by-b lumi monitor during RUN2)
    • DDL2 data read by dedicated standalone readout program
      - V0/T0 redundancy in DDL1 and DDL2
b-by-b Lumi Monitoring Using DDL1/DDL2 Interaction Records from CTP in RUN2

- Note:
  - I called this project IRMON not IRDDlumi
Inputs and communication channels used in RUN2

- TCP/IP stream from a dedicated server
- DDL2, DDL1
  - the main data source
  - DDL1 used only during VdM scans in RUN2
Inputs and communication channels used in RUN2

- DIM services

- ALICE/LHC/ECS_ELOG/BUCKETS_INTERACTING_B1/2
  ALICE/LHC/ECS_ELOG/BUCKETS_NOTINTERACTING_B1/2
  ALICE/LHC/ECS_ELOG/BUCKETS_DISPLACED_B1/2
  ALICE/LHC/ECS_ELOG/INT_BUCKETS_INTERACTING_B1/2
  ALICE/LHC/ECS_ELOG/INT_BUCKETS_NOTINTERACTING_B1/2
  ALICE/LHC/ECS_ELOG/INT_BUCKETS_DISPLACED_B1/2
  - beam configuration
  - bunch intensities

- ALICE/LHC/ECS_ELOG/MACHINEMODE
  ALICE/LHC/ECS_ELOG/BEAMMODE
  ALICE/LHC/ECS_ELOG/FILLNUMBER
  - LHC mode, beam mode, fill number
Inputs and communication channels used in RUN2

- **DIM services**

- ALICE/LHC/BEAM/SEPKNOB/LHCBEAM1/IP2_SEPSCAN_X-MM
  ALICE/LHC/BEAM/SEPKNOB/LHCBEAM1/IP2_SEPSCAN_Y-MM
  ALICE/LHC/BEAM/SEPKNOB/LHCBEAM2/IP2_SEPSCAN_X-MM
  ALICE/LHC/BEAM/SEPKNOB/LHCBEAM2/IP2_SEPSCAN_Y-MM

  - used for the abort gap charge measurement at the end of RUN1 (Main-Satellite collisions at 0 beam separation)

  - this functionality was not used during RUN2 and is not foreseen for RUN3
Inputs and communication channels used in RUN2

- **DIM services**

- CTPRCFG/INT1 CTPRCFG/INT2
  - originally used to describe the contents of Int1/Int2 in the DDL1 stream
  - when reading DDL2 any one of them signaled a change of the CTP configuration (`ctpinputs.cfg`)
Inputs and communication channels used in RUN2

- unix command: scp
- ctpinputs.cfg
  - simple scp copy of the config file from the machine where it was stored to the machine when IRMON was running
Inputs and communication channels used in RUN2

- DIP services
- not used for input information
- DIP was used only for publication of requested services
Data Exchange Channels

- **DIM**
  - beam and LHC info **IN**
  - interprocess communication **IN/OUT**
  - archiving purposes **IN**

- **DIP**
  - data publication for LHC-IF **OUT**

- **scp**
  - fetching the CTP configuration `ctpininputs.cfg` **IN**

- **cp / shutil.copyfile(...)**
  - copying Massi Files to the prearranged disk directory mounted on the machine **IRMON** was running

- **TCP/IP**
  - DDL1, DDL2 **IN**
Questions for RUN3

- **CTP:**
  - **DDL1**?
  - **DDL2**? Will it be provided in the same format?
  - **TCP/IP**? or something more complicated?
  - **ctpinputs.txt**: will it be replaced with something else?
Questions for RUN3

- **LHC-IF:**
  - beam, machine info?
  - will **DIM** be used in RUN3?
  - will **DIP** be used in RUN3?
  - where and how the **MASSI files** are to be stored in RUN3?
Plans: CREATION or EVOLUTION?

- Depends on how much will change in RUN3