

GLOBAL RUN PARAMETERS

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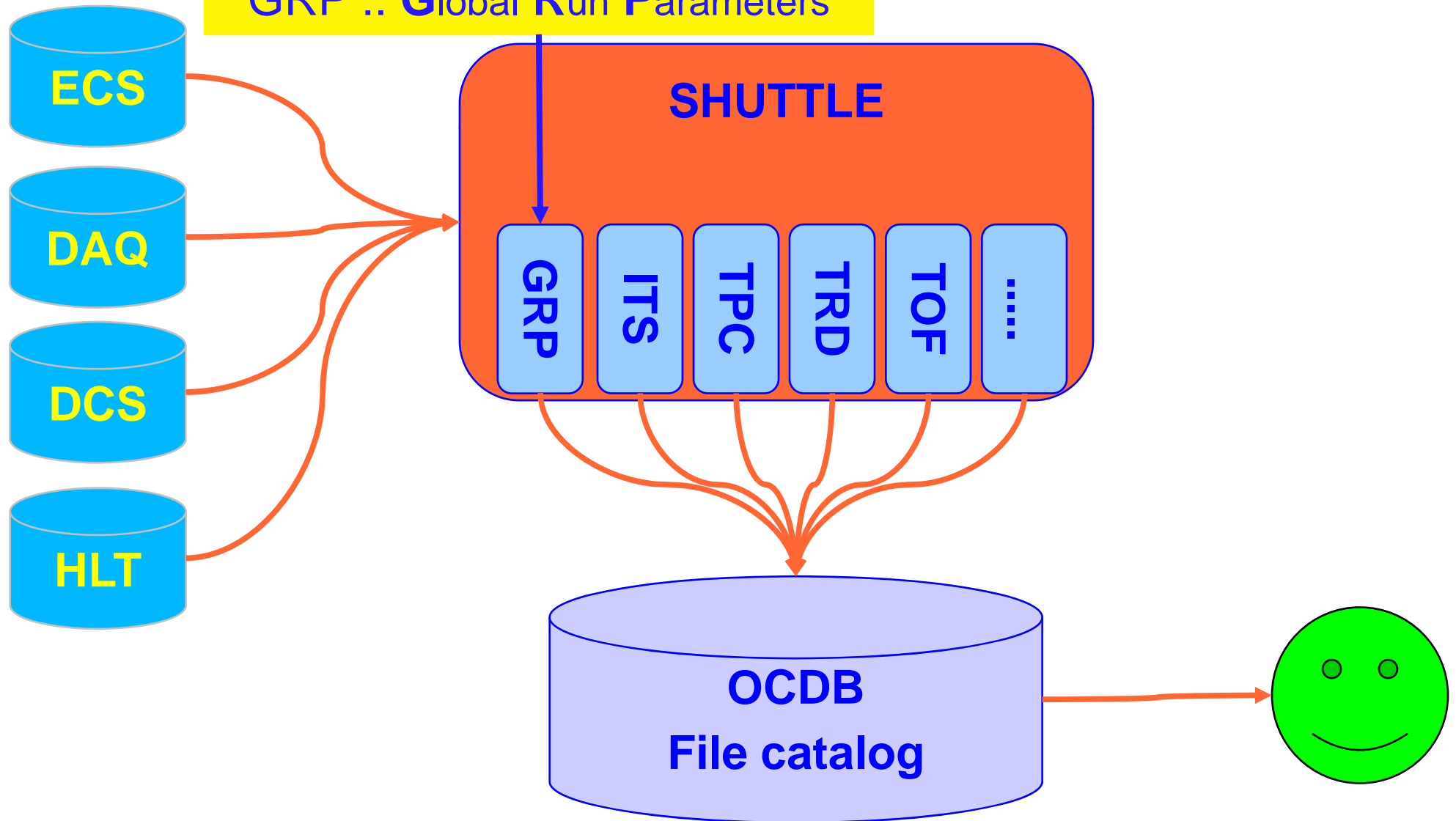


- **GRP** stands for **Global Run Parameters**.
- With this virtual detector we are monitoring the parameters that are not detector but rather ALICE related.
- The main motivation is to fill the different metadata fields on both the file catalogue and the event tags:
 - For example, the file catalogue structure is:
 - for 'real' data: /data/<Year>/<AcceleratorPeriod>/<RunNumber>/
 - for simulated data: /sim/<Year>/<ProductionType>/<RunNumber>/
- Apart from the file catalogue and the tags, we store some global variables which are not directly related to the detectors, yet are important for everybody.

SHUTTLE SCHEME



GRP :: **G**lobal **R**un **P**arameters



REGISTERED PARAMETERS - DAQ



Offline alias	Source	Type	Comment
fRunStartTime	DAQ (lb)	TString (date)	The start time of the run
fRunStopTime	DAQ (lb)	TString (date)	The stop time of the run
fBeamEnergy	DAQ (lb)	Float_t	The beam energy in TeV
fBeamType	DAQ (lb)	TString	The beam type ("p+p", "Pb+Pb",...)
fNumberOfDetectors	ECS-DAQ (lb)	Short_t	The number of active detectors per run
fDetectorMask	ECS-DAQ (lb)	Short_t	The detector mask per run
fLHCPeriod	ECS-DAQ (lb)	TString	e.g. LHC08a etc

DAQ FXS: we retrieve tag files for the raw data and merged them into one file

REGISTERED PARAMETERS – DCS Data Points (1)



Offline alias	Source	Type	Comment
fLHCState	DCS	TString	State of the machine ("INJECTION", "FILLING",...)
fLHCLuminosity	DCS	Float_t	Relative luminosity between bunches
fL3Current	DCS	Float_t	The current measured in the L3 magnet
fDipoleCurrent	DCS	Float_t	The current measured for the dipole magnet
fL3Polarity	DCS	Bool_t	The polarity of the L3 magnet (+ : kTRUE)
fDipolePolarity	DCS	Bool_t	The polarity of the dipole magnet
fBeamIntensity	DCS	Float_t	The total intensity of the beam
fCavernTemperature	DCS	Float_t	The temperature of the cavern
fCavernAtmosPressure	DCS	Float_t	The atmospheric pressure of the cavern



- We retrieve the trigger configuration file and create AliTriggerConfiguration object
 - Needed for offline reconstruction.
 - Several configurations will be pre-defined and available for CTP at the beginning of the run
 - ECS triggers the loading of the appropriate configuration
 - /OCDB/GRP/CTP/Config/

- We retrieve the scalers monitored by CTP and create AliTriggerRunScalers object
 - Needed for cross section calculation
 - Counters for each class at intervals of 1 min.
 - /OCDB/GRP/CTP/Scalers/

*** For further info see the CTP status report talk of Roman Lietava



- We would like to monitor also the:
 - Vertex diamond.
 - Luminosity calculated by ALICE (not the one sent by the machine).
- A new sub task was created and assigned to Tapan who is in charge of these measurements:
 - The vertex diamond will be calculated online using the SPD aliroot code.
 - The luminosity will also be calculated online.
- It is still unclear where the values will be retrieved from although the source is DCS:
 - The obvious candidate is DCS's AMANDA.
- A sub task was created and assigned to Tapan – we will hear from him soon.



- \$ALICE_ROOT/GRP/Calib/MeanVertex
 - The vertex diamond
- \$ALICE_ROOT/GRP/CTP/Config
 - The trigger descriptions for pp, muon and PbPb
- \$ALICE_ROOT/GRP/Align/Data
 - The zero, full and residual misaligned objects.
- \$ALICE_ROOT/GRP/Geometry/Data
 - The ideal geometry

SUMMARY



- We are monitoring the Global Run Parameters using the GRP preprocessor in the SHUTTLE framework.
 - DAQ DA: GRP
 - DAQ LB: start/stop time, beam energy, ...
 - DAQ FXS: We are retrieving the raw data tag files
 - DCS DPs: LHC State, LHC Luminosity, ...
 - DCS FXS: We are retrieving CTP configuration and scalers .
- What is still missing is:
 - The vertex diamond and the luminosity measurement by ALICE (Tapan)
 - Anything else????



BACKUP



- LHCState: Describes the current position of the machine
 - Possible state values: “PREPARE” - “PREINJECTION” - “INJECTION” - “FILLING” - “RUMP” - “ADJUST” - “UNSTABLE BEAMS” - “STABLE BEAMS” - “BEAM DUMP” - “RECOVER” - “PRECYCLE”
- LHCPeriod: Gives a top level description of the status of the machine
 - Possible period values: “SHUTDOWN” - “CHECKOUT” - “PROTON RUN” - “ION RUN” - “HIGH BETA RUN”.
- For the parameters the returned type of which is a TString DCS registers one value per run:
 - Once the machine publishes a new value the run will be stopped.
- The LHC parameters that are going to be published are not fully defined!!!



- Counters are read 1/minute
- Counters can be interpolated between readings
- The counters of all trigger classes for given run can be saved on
 - event level (ESD): large redundancy $50 \times 6 \times N_{\text{events}}$
 - run level ☺
 - read OCDB during analysis: against rules

STATUS OF THE GRP PREPROCESSOR



	GRP
Preprocessor	
DAQ DA	
DAQ FXS output files	
DCS DP names	
Preprocessor reads DPs	
DCS DA	O
DCS FXS output files	
HLT DA	O
HLT FXS output files	O

 = nothing to be done but OK

 = OK, but dependency missing