



ATLAS
DCS

DDC Experience at Tilecal

Outline

- **Tilecal DCS testbeam setup**
- **DDC Work**
- **Findings**
- **Improvement suggestions**
- **Conclusions**

This talk report on the first usage of the DDC SW at the Tilecal Testbeam periods in July, August and September 2001. It summarizes a collection of points reported to the authors of DDC

by M. Caprini, S. Malioukov and F. Varela.



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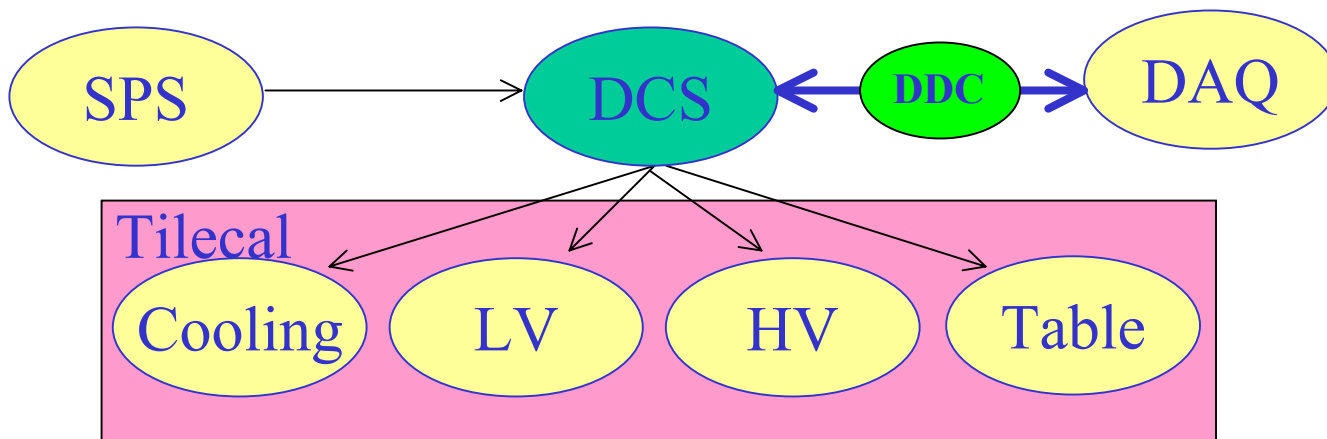
DCS Test-beam Set-up

Scope

- Calibration of 12% of the Tilecal modules using particles.
- Integration of the different DCS subsystems of Tilecal.
- Introduce standard DCS tools in the Tilecal community.

Collaboration CERN/DCS and Tilecal group from Clermont-Ferrand

Systems:



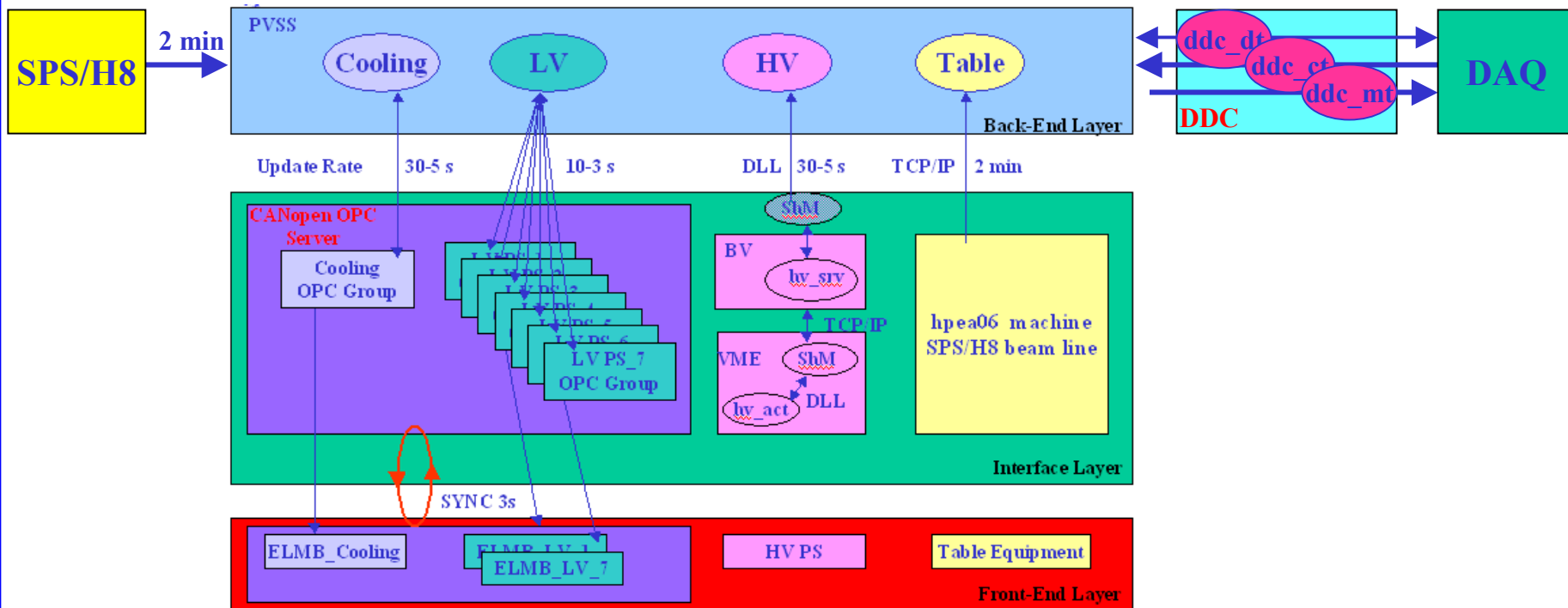
DCS Tasks:

- Provide monitoring and control functionality to the different Tilecal subsystems
- Enable interface with the SPS.
- Allow for bidirectional data exchange with DAQ.
 - DCS -> DAQ needed for offline analysis of DAQ data
 - DAQ -> DCS, e.g. DAQ notifies start of run.



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DCS Test-beam Set-up



System	Number of Channels	Update Rate (s)
Cooling	27	5 to 30
Low Voltage	220	3 to 10
High Voltage	384	10 to 30 s
Table	20	120
SPS/H8 Beam Line	256	120
Total = 907 (820 transferred to DAQ)		



What was done:

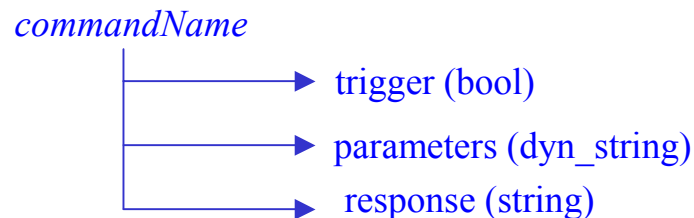
- Bi-directional data exchange using ddc_dt in the three beam periods (July, August and September)
- Issuing of commands from DAQ to DCS by means of ddc_ct during first period.
- Sending of messages and alarms from DCS to DAQ using ddc_mt in September (Request from DAQ)

DDC Environment in PVSS-II:

- ddc_dt
 - DAQ to DCS: definition of a DPT which matches the DAQ structure published to the IS
- ddc_mt
 - Any DPE of type string or having alert handling may be used for message transmission

These two managers need a configuration file each with the dpe to be handled

- ddc_ct
 - A SCADA script and a DP of DPT DAQCommands:



The command must be defined in the DAQ DB and its name must match with the DP-name

DCS Expert must ensure unique number of the different manager



Testbeam Findings

Findings:

- General:
 - PVSS-II and DAQ release 0.0.14 are not compatible -> RTTI option used in DAQ SW is not supported by SCADA -> Need for a special version of DAQ libraries (S. Kolos)
 - DDC (“*current*” implementation) does not respect the independence between DAQ and DCS.
- **ddc_dt & ddc_mt**
 - 2 ways of starting: 1.- From SCADA by the DCS expert: **Problem if IS Servers are killed from the DAQ side.**
 - 2.- As an unsupervised application by “*play_daq*”: **Problem if SCADA is not running -> play_daq must be restarted.**
 - **ddc_dt**: Only basic types supported -> Modification the DDC code to access the “*run_number*”
 - Data update at start of run handled by a SCADA script (Workshop) -> Proposal for OBK in the DAQ side)
- **ddc_ct**:
 - 2 ways of starting: 1.- As a controller in the DAQ hierarchy: **Problem SCADA is not running -> play_daq cannot be started. (Limitation in the DAQ side and ddc_ct).**
 - 2.- As an unsupervised application by “*play_daq*”
 - Only possible to send commands on controller transitions.



Suggestions and Conclusions

Improvement Suggestions

- Need for PVSS-II to be installed in AFS.
- Internal wait-loop to retry communication with both sides in case of problems.
- Implement array transfer
- Implement data type casting in DDC to go from standard C++ types to PVSS-II
- To access DAQ info w/o modifying the DDC code: Mapping of DAQ info classes to PVSS-II DPs.
- Two update methods: 1.- onDataChange() already implemented
2.- onRequest(): Useful to reduce data traffic -> Smoothing may be implemented in PVSS but only if data come through the driver -> Not possible when DP values are set from script or an API manager, as it is done for the beam and table information (256 + 20 values)

Conclusions

- Very positive experience with DDC and documentation (e.g. set up ddc_mt to notify HV trips took ~10 min).
- The 3 managers were satisfactorily tested.
- Data volume and update rate are neither a problem for DDC nor for DAQ DB.
- DB size after the testbeam: 100 MB belonging to ~500 runs collected
- Useful feedback: many issues and suggestions reported to the authors (We hope!)



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