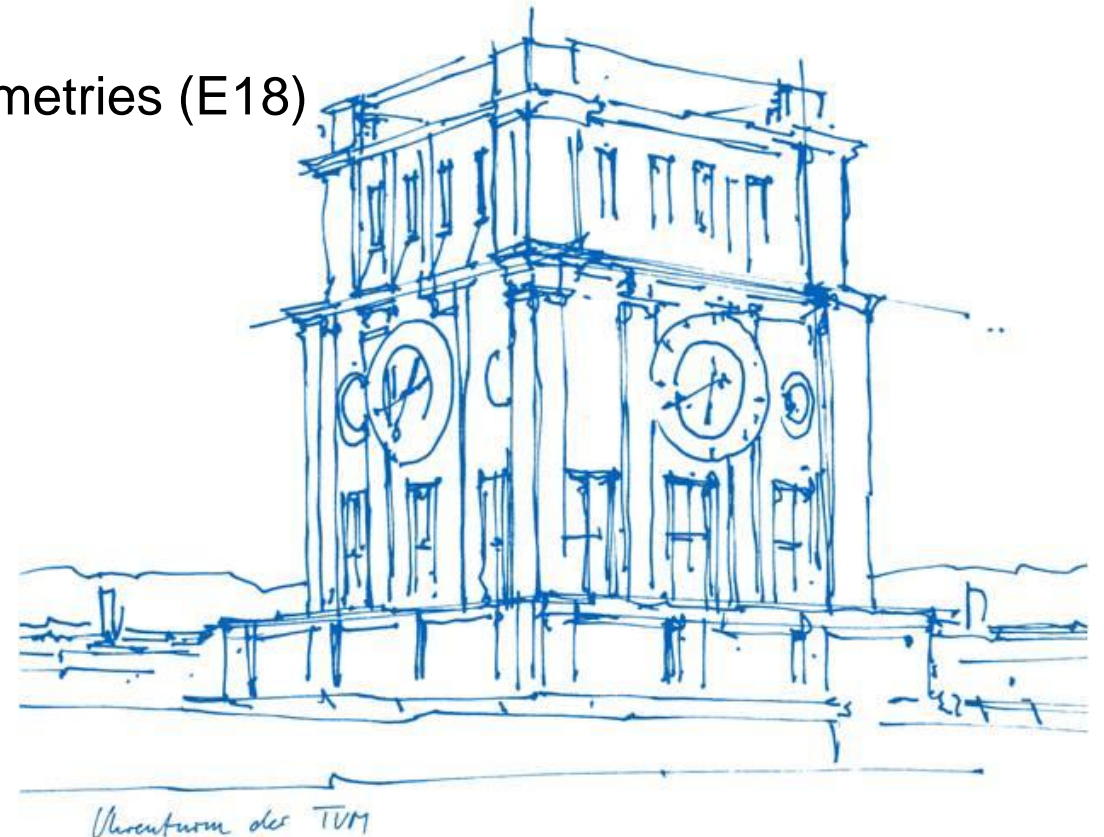# DAQ Status and Plans

Igor Konorov

Institute for Hadronic Structure and Fundamental Symmetries (E18)

TUM Department of Physics

Technical University of Munich

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Dry Run 9.11-11.12.2020

Important test of DAQ

- Remote access for shifts
- New Start of Run script
- New DAQ GUI
- New DAQ libraries
- MurphyTV, COOOL, User programs recompiled with UDP monitoring ctalibrary
- New Juniper Ethernet network switch integrated, all subnetworks are interconnected via the switch. Switch configuration
- Test of CTA(CERN Tape Archive) new storage facility. During Dry run the were transmitted to CTA .

Remote Access to COMPASS PCs for Shifters and Experts

Access proposed : X2GO session to pccoczm (X2Go server)

- Some instability of the server due to many ghost processes

- Improved by resetting all remaining X2GO sessions every night

- Stable remote work with MATE desktop

- Usually shifters execute GUI on pccoczm, risk to overwhelm PC with processes

- Define usage of PCs for DAQ GUI, MurphyTV, COOOL

Mattermost Integration

Channels :

- General
- Logbook
- Shift
- DAQ
- GEM
- …

- Accessible in smartphones and webbrowser in any PC

DAQ Issues

- Many maintenance issues..
- Missing network in the tunnel for BMS pccofeXX
- Configuration of MUX11 on gallery : conflict by duplicated SrcIDs
- UDP monitoring: packet sizes changed from 8k to 1.5k. Caused MTV and COOOL freezing
- Safe DAQ stop was implemented
- Fixed GUI issues: dead time setting window, rights to changes GUI settings in monitoring mode, display sizes…
- .

DAQ Issues

DAQ

- DAQ crashed very often due to some equipment stopping delivery data. Problem pointed to TCS. Only DAQ MUXand Switch affected. Suspected loss of light, misbehavior of TCS controller, Slow control.

  Reason : DAQ MUX/Switch modules randomly lost TCS synchronization

  Real reason : bad LEMO cables between TCS controller and TCS encoder

- Observed loss of IPBus packets. Problem originated in configuration of Juniper Ethernet switch, packets conflicted with other ones. Network reconfigured to avoid conflicts

Calorimeters

- LED calibration of HCAL1, HCAL2 was made working, wrong cable connections fixed, DCS displays calibration data. ECAL1 and ECAL2 still to be verified

High Trigger and Data Rate Tests and others

- DAQ run stably with about 30kHz trigger rate and reduced event size
- Long term tests(over night) ended with DAQ crash after few completed 200 spill runs. Problem to be investigated.

Primary suspect for problem unbalanced data flow : MUX11 and MUX12 provide significantly more data than other detectors

- Final DAQ test with NOMINAL event size of 50kBytes was not done because of problems of adjusting threshold level
- Test of MWPC with F1 TDC and Test of new spill buffer cards with new Switch firmware were not done because of travel restrictions

Plans for COMPASS DAQ in 2021

- Keep DAQ running

- Test of new spill buffers and switch firmware in end of February (**depends on travel restrictions!**)

- If run starts in July then all detector front-ends shall be switched on in end of May

COMPASS++/AMBER DAQ Plan in 2021

Current setup

- HLT server
- 2 pccore computers equipped with spill buffers
- TCS controller moved from DAQ room to 888
- Shared network with COMPASS

DAQ components available:

- 9 MUX and Switches are available but not installed yet

Next steps :

- Purchase missing computing and DAQ hardware, submit production of new DAQ hardware
- Complete prototype setup in March (**depends on travel restrictions** !)

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Items to be Ordered in January

Urgent computing items:

1x Gateway (either old pcconl02 or low cost computer i5/32GB …)	700 Euro
1x Webserver (either old pcconl02 or low cost computer i5/32GB …)	700 Euro
1x File Server /online (1x Amber Server V1 + 4x 16TB)	3700 Euro
1x Mysql Server (1xAmber Server V1 + 4x 16TB + 64GB RAM)	4000 Euro,
2x 1Gb Ethernet Switch 24 ports for AMBER network	1000 Euro.

Computing Total :   **~10 (8.7) kEuro**

Urgent DAQ hardware items:

2x ATCA carrier card	2000 Euro
4x ATCA AMC card for optical transceivers	4000 Euro
ATCA mechanics, fiber cables, optical transceivers	3500 Euro
DAQ hardware total:	**10000 Euro**

Grand total :   **20 (18.7) kEuro**