

# COMPASS support software tools

Martin Zemko

Czech Technical University in Prague,  
Charles University in Prague

February 12, 2019

# Support tools

- additional smart tools that can be really helpful,
- they can make our daily tasks easier, e.g. making logs or comments, enrolment for shifts, deploying new software, etc.
- some of them are already in use, the others are being prepared,
- these tools have been developed by students from the Czech Technical University in Prague.



# COMPASS support tools

## Already implemented

- Electronic checklist
- Shift manager
- COMPASS logbook user interface
- RCCARS deployment application

## Under development

- Event size display
- 3D event display
- Start-of-run scripts

A brief introduction of these useful tools follows ...

# Electronic checklist

- filling the checklist is simple and user-friendly with this tool,
- using of one's own tablet or smartphone is possible to fill the list,
- a shifter is authorized at the beginning,
- the checklist is submitted to the run manager when it is done,
- checklists are managed and archived in the database (no more papers → eco-friendly).

# Electronic checklist

Project COMPASS, CERN

USER

ADMIN

[FORM CREATE](#) [FORM VERSIONS](#)

## COMPASS Checklist 2019

To be performed once per shift approximately four hours after the shift start.

Date:  Night:  Day:  Evening:

Shiftleader:

### Create form

**DAQ Barracks**

Temperature: Temperature in barracks

Min value: 20 Max value: 30

Number

Options:

**Control room**

Coffee: Coffee stock

Min value: 10 Max value: 100

Number

Options:

Add section

Save form Update form Delete form

Navigation icons: back, forward, search, etc.

# Shift manager

- new shift manager replaces the old solution because of its poor efficiency
- the new system is based on the web technologies → users can register themselves to shifts from every device
- all benefits of the old system are retained
- support for calculation of shifter score is included,
- the application has been developed, but not deployed yet (it will be introduced during LS2)

# Shift manager

### Create New Shifts

**Year Description**

Name (category)  Year

**Dates**

First Day

June 2017						
Su	Mo	Tu	We	Th	Fr	Sa
28	29	30	01	02	03	
04	05	06	07	08	09	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	01
02	03	04	05	06	07	08

Last Day

June 2017						
Su	Mo	Tu	We	Th	Fr	Sa
28	29	30	01	02	03	
04	05	06	07	08	09	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	01
02	03	04	05	06	07	08

First Shift:  Night  Morning  Evening

Last Shift:  Night  Morning  Evening

**Shift Times**

**Points & Coefficients**

**Institutes** Total points:



# COMPASS logbook user interface

- set of tools includes the run manager, add comment and shift manager,
- original software was still functional but was built on deprecated technology,
- old tools were used as templates for the new ones,
- user interface stayed the same, but newer technology is used in the background,
- new applications use the Qt framework.



# Deployment application

- it can be used to setup the environment allowing one to deploy it locally, e.g. test stands, OS reinstallation cases, etc.
- administrator can set up a compiling sequence,
- process of compilation is automated and comfortable (everything is controlled via GUI),
- even non-experienced users can master deployment of the DAQ system.

# Deployment application

Deployment Application

## ENVIRONMENTAL VARIABLES

RE_DEBUG	<input type="text" value="12"/>	<input type="button" value="SAVE"/>	<input type="button" value="EDIT"/>	<input type="button" value="DEL"/>
DIM_DNS_NODE	<input type="text" value="pccofs00"/>	<input type="button" value="SAVE"/>	<input type="button" value="EDIT"/>	<input type="button" value="DEL"/>
DIM_DNS_NODE_CS	<input type="text" value="pccofs00"/>	<input type="button" value="SAVE"/>	<input type="button" value="EDIT"/>	<input type="button" value="DEL"/>
DB_SERVER	<input type="text" value="pccodb00"/>	<input type="button" value="SAVE"/>	<input type="button" value="EDIT"/>	<input type="button" value="DEL"/>
DB_DB	<input type="text" value="devdb"/>	<input type="button" value="SAVE"/>	<input type="button" value="EDIT"/>	<input type="button" value="DEL"/>
DB_USER	<input type="text" value="daq"/>	<input type="button" value="SAVE"/>	<input type="button" value="EDIT"/>	<input type="button" value="DEL"/>
DB_PASSWD	<input type="text" value="na58daq"/>	<input type="button" value="SAVE"/>	<input type="button" value="EDIT"/>	<input type="button" value="DEL"/>

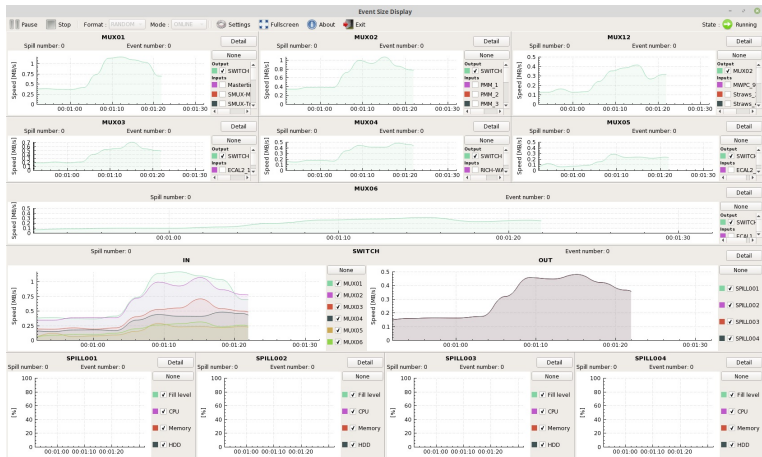
## PATHS

<input type="text" value="/opt/cactus/lib"/>	<input type="button" value="SAVE"/>	<input type="button" value="DEL"/>
<input type="text" value="/online/CMAD/cactus/lib"/>	<input type="button" value="SAVE"/>	<input type="button" value="DEL"/>
<input type="text" value="/online/CMAD/QICore"/>	<input type="button" value="SAVE"/>	<input type="button" value="DEL"/>
<input type="text" value="/online/daq/lib"/>	<input type="button" value="SAVE"/>	<input type="button" value="DEL"/>
<input type="text" value="/online/RCCARS/compass-rccars-daq/compass-rccars-daq-transportprotocol"/>	<input type="button" value="SAVE"/>	<input type="button" value="DEL"/>
<input type="text" value="/online/RCCARS/compass-rccars-daq/compass-rccars-daq-registers/lib"/>	<input type="button" value="SAVE"/>	<input type="button" value="DEL"/>
<input type="text" value="/online/CMAD/qwt/qwt-6.1/lib"/>	<input type="button" value="SAVE"/>	<input type="button" value="DEL"/>

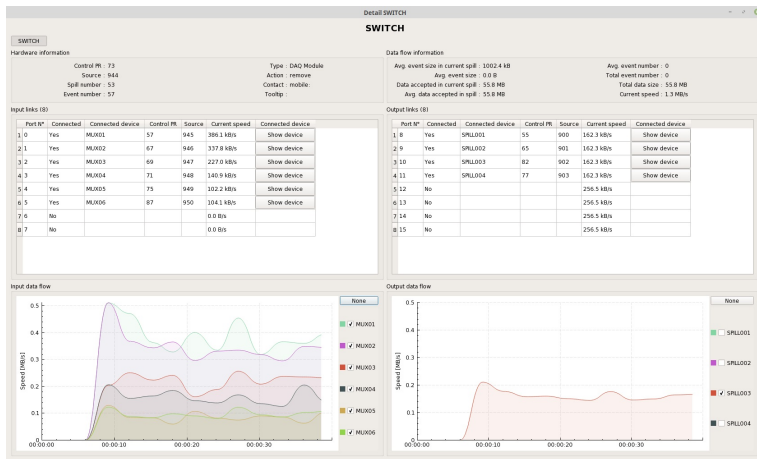
# Event size display

- this application shows the size of dataflow going through the DAQ in real time (online) or from data recorded (offline),
- it will be able to fetch data from 4 various sources:
  - 1 status information from FPGA cards (in real time),
  - 2 physics data from Spillbuffers (in real time),
  - 3 events stored in DATE files,
  - 4 data stored in the database,
- data speeds will be plotted to the speed plots showing megabytes per second,
- Event size display will be introduced towards the end of this year.

# Event size display



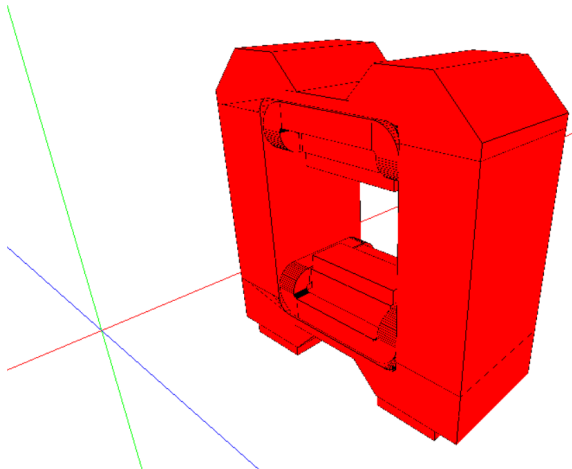
# Device detail



# 3D event display

- the new event display will be capable of rendering 3D events as they were captured by the COMPASS detectors,
- user can move, rotate and zoom events and detector,
- 3D display uses web technologies to render events → it can be used on every computer,
- it is under heavy development these days, and it will be deployed this year.

# 3D event display



# Start-of-run scripts

- these scripts are executed every time a new run is initiated,
- the old implementation was based on system calls causing many issues,
- they were obsolete and difficult to maintain,
- modifications of this "black-box" were almost impossible,
- work on the new scripts is in progress these days.



# Thank you for your attention