



Mock Data Run 21-01-2015 Controls & Monitoring Summary

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22 January 2015



Goals

• Goals for MDR150121

- 1) Integrate BeamLine IOC into BeamLine StateMachine
- 2) Integrate BeamLine StateMachine into RunControl
- 3) Integrate Detectors into Detector StateMachine
- 4) Integrate Detectors StateMachine into RunControl
- 5) Deprecated goal: only BeamLine – drop 3 and 4
 - EMR C&M not ready
 - tracker C&M not far enough along



BeamLine IOC

- BeamLine is:

- Target
- NC magnets
- Decay Solenoid
- Proton Absorber
- Beam Stop
- Diffuser

- BeamLine IOC does not include Target or DS
- Combines remaining elements
- Checks readiness of each device
- Checks when each device has read=set values
- Provides menu driven control for PA & DF

Menu driven control of proton absorber and diffuser

Proton Absorber Control (on miceiocptest...)

Device Name: "TCW181-CM"
 Software version: "v1.01"
 Release date: "August 2012"
 IP Address: 172.16.246.156
 SubNet Address: 255.255.255.0
 Gateway Address: 172.16.246.165
 MAC Address: 00 04 A3 AA 11 3
 DHCP Config: 0

ON OFF
 1 1 0
 2 2 0
 3 3 0
 4 4 0
 0 0

AllOn
 AllOff

Set value for proton absorber: **146mm**

5.7 bar Supply air pressure
 1.0 bar Relief IN air pressure
 1.0 bar Relief OUT air pressure

Exit

| p Absorber Switch | Limit | Switches | p Absorber Plates |
|-------------------|-------|----------|----------------------|
| 29mm Up value | 0 | Closed | 29 mm |
| 49mm Up value | 0 | Closed | 49 mm |
| 53mm Up value | 0 | Closed | 53 mm |
| 15mm Up value | 0 | Closed | 15 mm |
| 29mm Down value | 1 | Open | p Absorber 146 mm |
| 49mm Down value | 1 | Open | |
| 53mm Down value | 1 | Open | |
| 15mm Down value | 1 | Open | |

Bit mask : 0xF

/home/epics/epicsDEV/Config/opi/ed/diffuser.edl (on miceiocptest.micenet.rLac.uk)

IRIS 1 IRIS 2 IRIS 3 IRIS 4

0.207 X0 0.000 X0 0.938 X0 0.000 X0

OPEN CLOSE OPEN CLOSE OPEN CLOSE OPEN CLOSE

Line Pressure
 Remote
 Power

Diffuser
 In 3 1 Out

AirOff

IRIS MASK
 0x 5

Total RadLen
 1.1 X0

Set Diffuser
 1.944 X0
 Setting

Exit

Busy: IRIS 2 opening

This feature allows RC to set these devices; i.e. read value from CDB and then set device



BeamLine State Machine

- **It WORKS!**
- **First attempt to test BL SM.**
- **Needs tuning, but need time with equipment in operation**
- **Needs alarm and archiver parameters tuned by BL expert**



Run Control

- It WORKS with BeamLine!
- First attempt to test BL SM.
- Needs tuning, but need time with equipment in operation
- New IOCs (NUC) work

The screenshot displays two main windows: 'MICE Run Status' and 'MICE Run Control'.

MICE Run Status:

- Run number: 5994
- Run type: Physics Data
- Trigger Type: TOF1
- Spill Gate Width: 0.00 ms
- DATE Status: Run Complete
- gdcHostName: [redacted]
- Three histograms: Event Size, Particle Triggers, and Acc-Req Triggers.
- EXIT button
- Table of triggers:

| | Spill: | Integrated |
|--------------------|--------|------------|
| Particle Triggers | 0 | 0 |
| Requested Triggers | 0 | 0 |
| GVa1 Triggers | 0 | 0 |
| ToF0 Triggers | 0 | 0 |
| ToF1 Triggers | 0 | 0 |
| LMC-12 | 0 | 0 |
| LMC-34 | 0 | 0 |
| LMC-1234 | 0 | 0 |

MICE Run Control:

- Buttons: Begin Run, MICE Step, Run Type, Trigger Type, Beam Optics, Cooling Chan, Comment.
- Current values: Step IV, Physics Data, TOF1, 6-200+M0, CoolChan.
- Comment: End MockDataRun 21-0
- BeamLine not ready warning: Hit display, EXIT when complete.
- Ready to Start DATE from DAQ PC button.
- DATE Status: Run Complete
- RC Status: Writing End Run Info to CDB
- Start Processes button, Writing to: Test CDB (yellow circle)
- EXIT button, CDB Read Status (green circle), CDB Write Status (yellow circle)
- Debug On button
- Enter Tag Name: (max 20 characters)
- LDC Host Name: [redacted]
- GDC Host Name: gdcHostName
- Run DFC button



Problems

- ToF & KL use CAEN SY527 – pci card did not run w/SL6.4; built deprecated PC (SL5.7) to operate – thanks Ed
- Ignored GVa1 & CKOV HV C&M since awaiting new SY4527 card
- **Note: have no spare for aging and unsupported system**
- Diffuser: new hardware problem – IRIS 1 does not open
- this brings to light failure of RC when HW problem exists
- Run Control GUI needs updating
- fix to selections of: beam configurations, BL ready button, step selection
- Integration with DAQ – missing parameters from DATE
- Need TargetMon to work again
- Write to CDB did not work; normally awaits trigger, so don't know root cause