



MICE Controls & Monitoring

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Outline

- Where we were at the time of CM43
- State Machines
- Run Control
- Channel IOC
- Other IOC updates
- Alarm Handlers and Archivers and AutoSMS
- To Do



CM44 recap

- Hardware installation/un-installation, IOCs stable config.
- Personnel changes
- Channel IOC complete
- State machines – excellent progress
- Run Control -- new additions for channel, stable
- ISISMon paper in progress to boost rates
- Code is in production version, but requests keep coming
- Recommend no network changes for Step IV



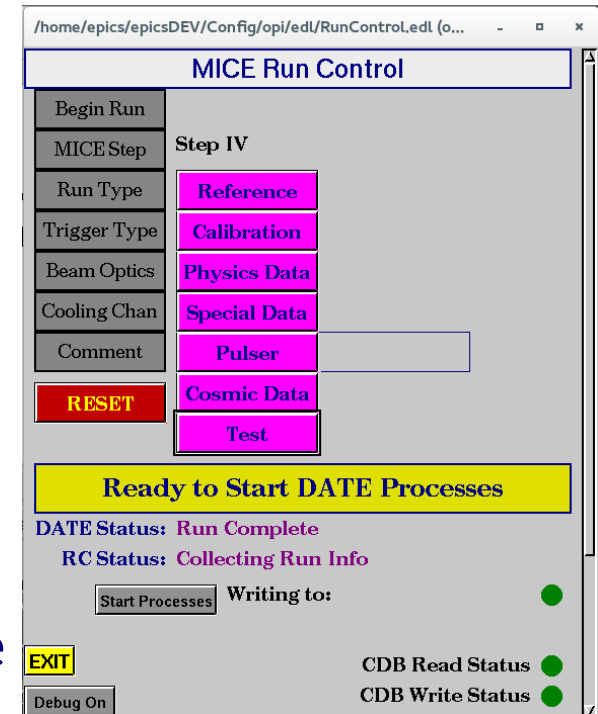
State Machines

- **State Machines (SM) are required to be passive**
 - Requires some sub-system IOCs: BeamLine, Detector, Channel
- **Sub-system owners populate SM parameters via “spreadsheet”**
- **Sub-systems with SMs:**
 - SSU
 - FC – needs updating
 - SSD
 - BeamLine – needs updating
 - Detectors – needs updating
 - **DS: still in progress**
 - Tracker - complete
 - **Target: in progress – thanks to Ed Overton**
- **Add dynamic alarm limits for SM “Powered” states**



Run Control

- Integration with Channel IOC
- Proper Channel read to/from CDB
- Can write BL and Channel tags to CDB
- Absorber table interface implemented
- Need to:
 - write hardware OK word
 - complete absorber interface when available
 - implement suggestions from users





Channel Controls

- Complete and integrated into RC – revamping logic
- Channel IOC integrates
 - SSU/FCU/SSD PSU control – near completion
 - E5AC – heater/pressure control for LHe volume in SS's
 - PRY movement – now new channels on SSU/SSD OVC
 - Leybold TD20
 - B-field – internal to tracker volume & external – now polarity/mode
 - SS QPS monitoring
 - SS HTS/LTS leads and coils monitoring – now complete from QPS
 - O₂ monitoring for tracker volumes – now computes He percentage
- Feeds into SSU/FC/SSD state machines



Other IOCs

Regular running has brought to light other systems:

- Target:
 - Ed modified RATS to be more like Tracker
 - Will require a SM for proper monitoring
- Detector:
 - EMR – Ajit
 - Detector – will need updating when ToF channels are moved
 - need to update SM
- Environment – needs updating
- Facilities – needs updating



ALHs, Archivers, AutoSMS

- Several systems have been identified require additional alarms and parameters added to the archivers
- The completion of several state machines have quieted down ALH in the MLCR => those remaining require tuning of their SM spreadsheets
 - E.g. only real alarms come from TKU and TKD
- New parameters need to be added to Archivers
- Running of Trackers identified desire to revisit AutoSMS



To Do List

- State Machines – complete and missing
- Run Control
 - finalize RC gui
 - implement Absorber PVs when they become available
 - add Channel “Physics” run type in gui
 - implement final Channel PSU control (remove RC PVs)
 - implement ssh lockout
- Channel IOC
 - Complete PSU control
- Other IOC updates
- Alarm Handlers and Archivers and AutoSMS
- Finalized code to epicsPRO
- Need DL to fix drop-outs
- Implement IOC access while running



Summary

- Much progress since CM44
- State machines – excellent progress, but more to do
- RunControl – only minor modifications remaining
- Channel IOC – biggest drive, most effort on PSUs
- C&M now at a point when lower priority items can be revisited