



MICE: Controls & Monitoring

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23 February 2014





Outline

- **Since CM37**
- **C&M Organization**
- **Progress on Integration**
- **Other items**

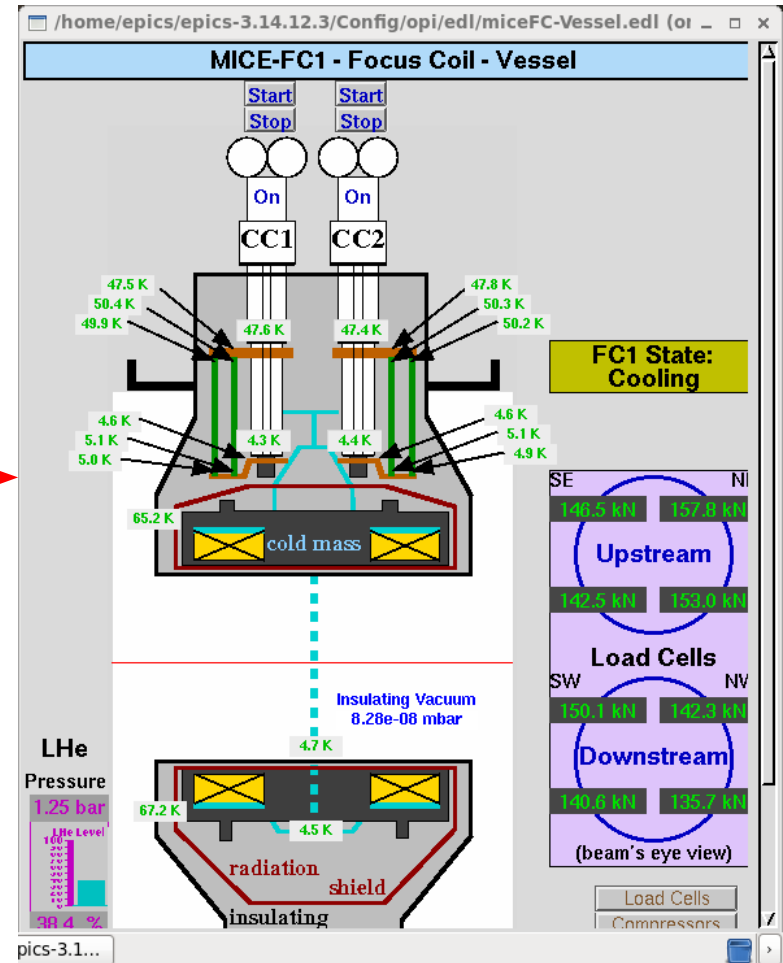
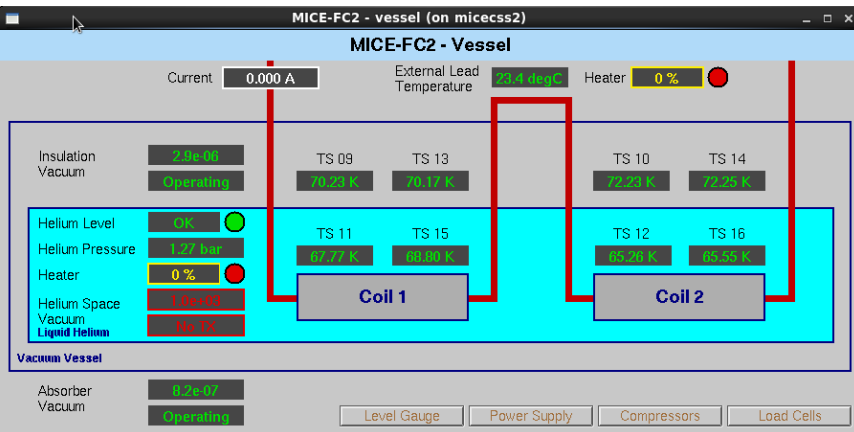


Since CM37

- **Proton absorber**
- **UPS monitoring**
- **C&M organization**
- **SS1 state machine**
- **FC1 state machine**
- **DS state machine**
- **Integration plan**
- **Integrated QPS**

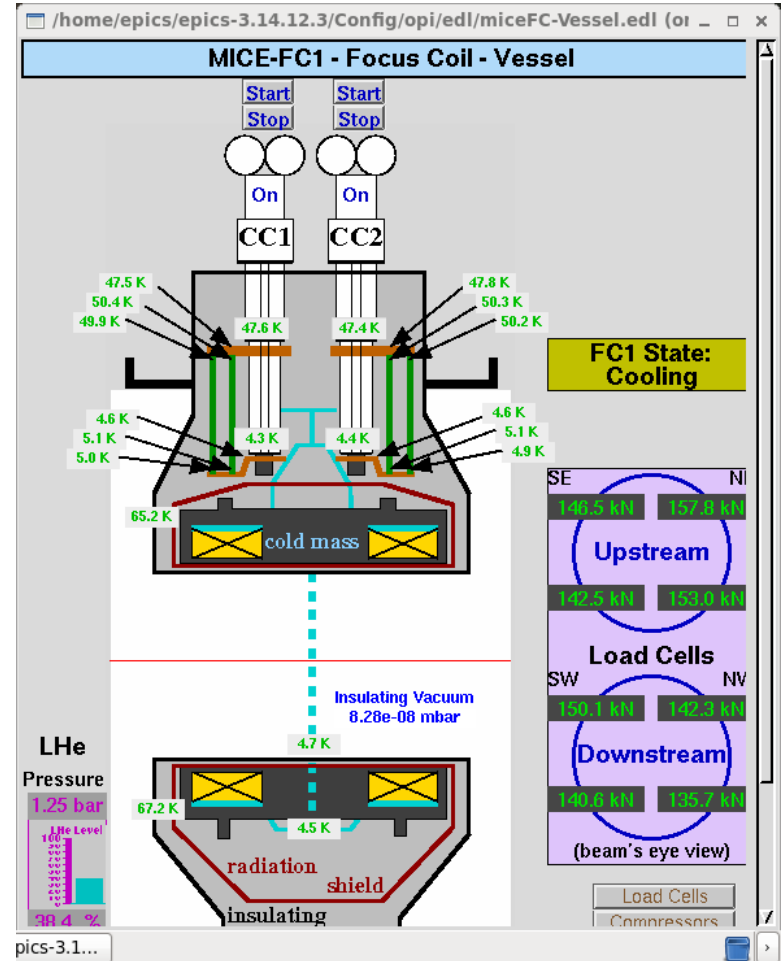
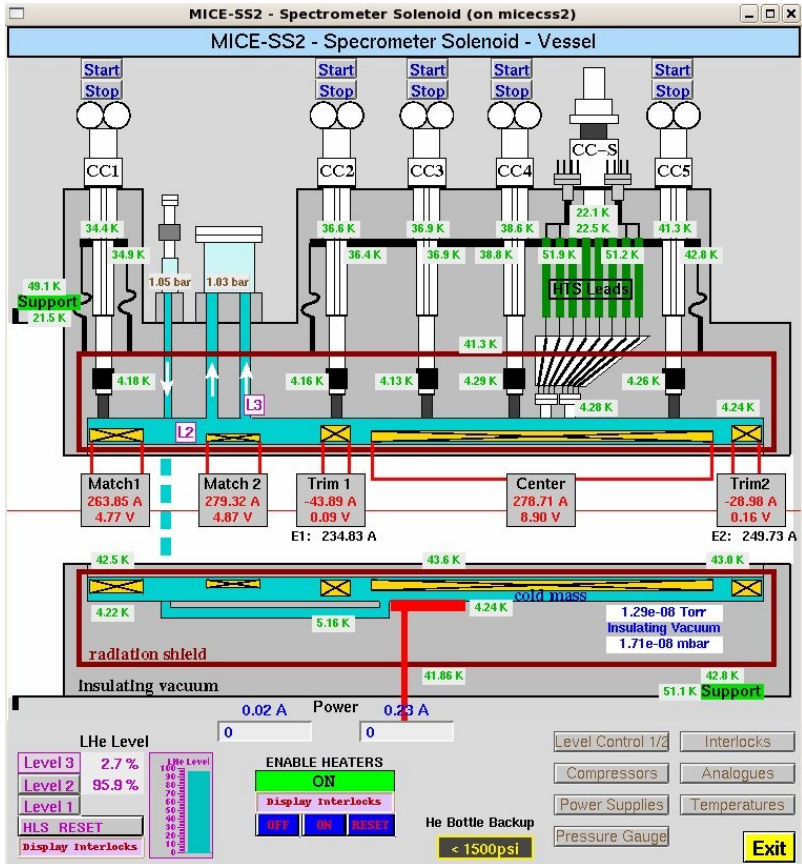


Since CM37 - FC





Since CM37 - SS





C&M Organization

- **Large systems provided by controls team from Daresbury lab:**
 - **SS/FC/DS/conventional magnets**
 - **LH₂ system**
 - **Integrated cooling channel controls**
 - **FC/DS quench protection**
- **Target and Tracker controls provided by Leaver/Robinson/Adey**
- **Overall coordination/integration by Hanlet**

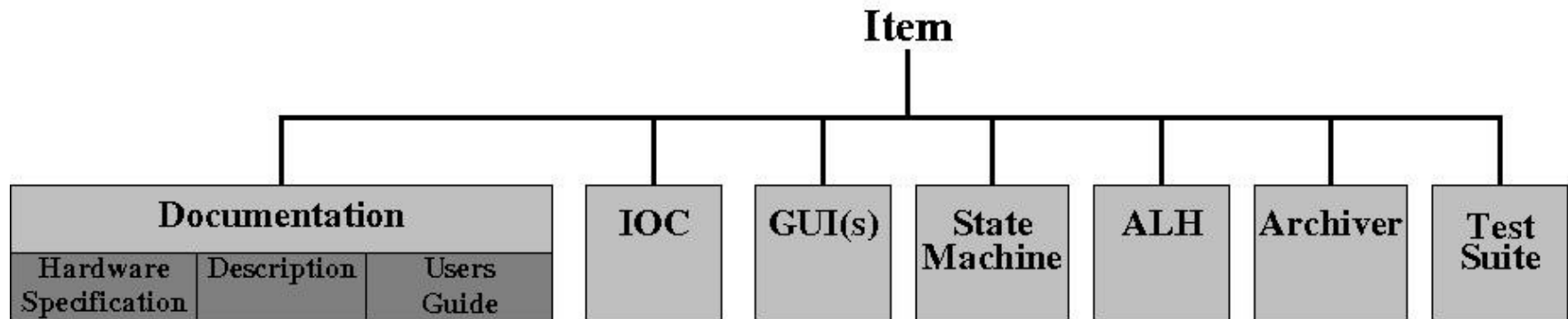
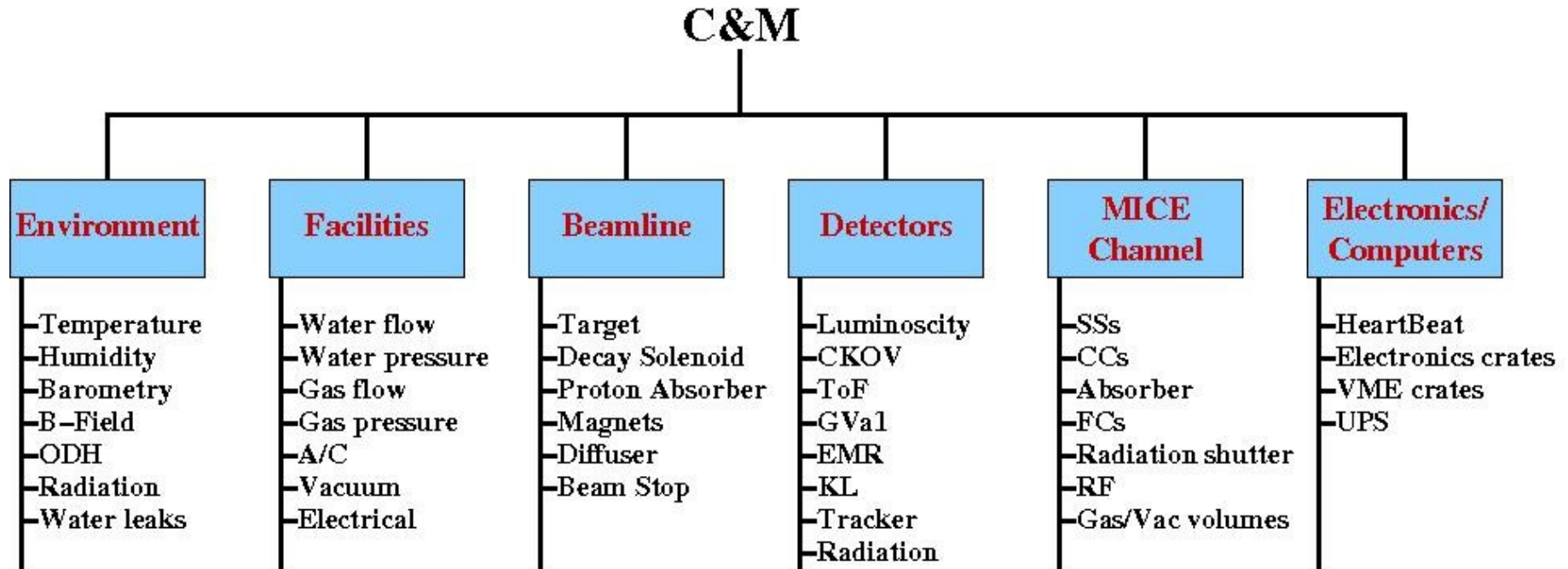


C&M Organization

- **Daresbury will also provide the repackaging of the control systems for Steps IV and V/VI**
 - **new rack room - RR2 (see Griffiths)**
 - **new vacuum manifold**
 - **compressors**
 - **power supplies**



C&M Organization





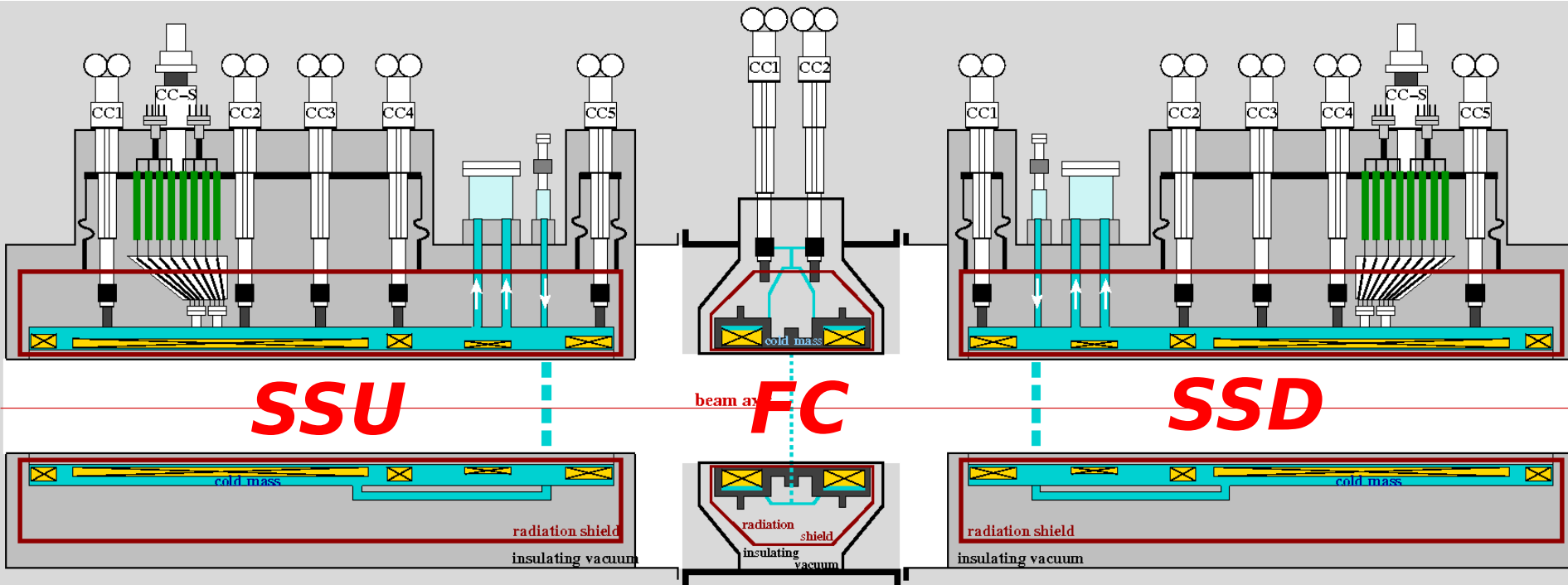
C&M Organization

- **With items developed and functional**
- **Next task is integration**
 1. **hardware installation/commissioning**
 2. **higher level operations - StateMachines**
 3. **integrated operations - RunControl**

More on Wednesday



Step IV Operations



- Vacuum
- Compressors
- Cryogenics
- Pressure
- Power Supply

- Vacuum
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Integration

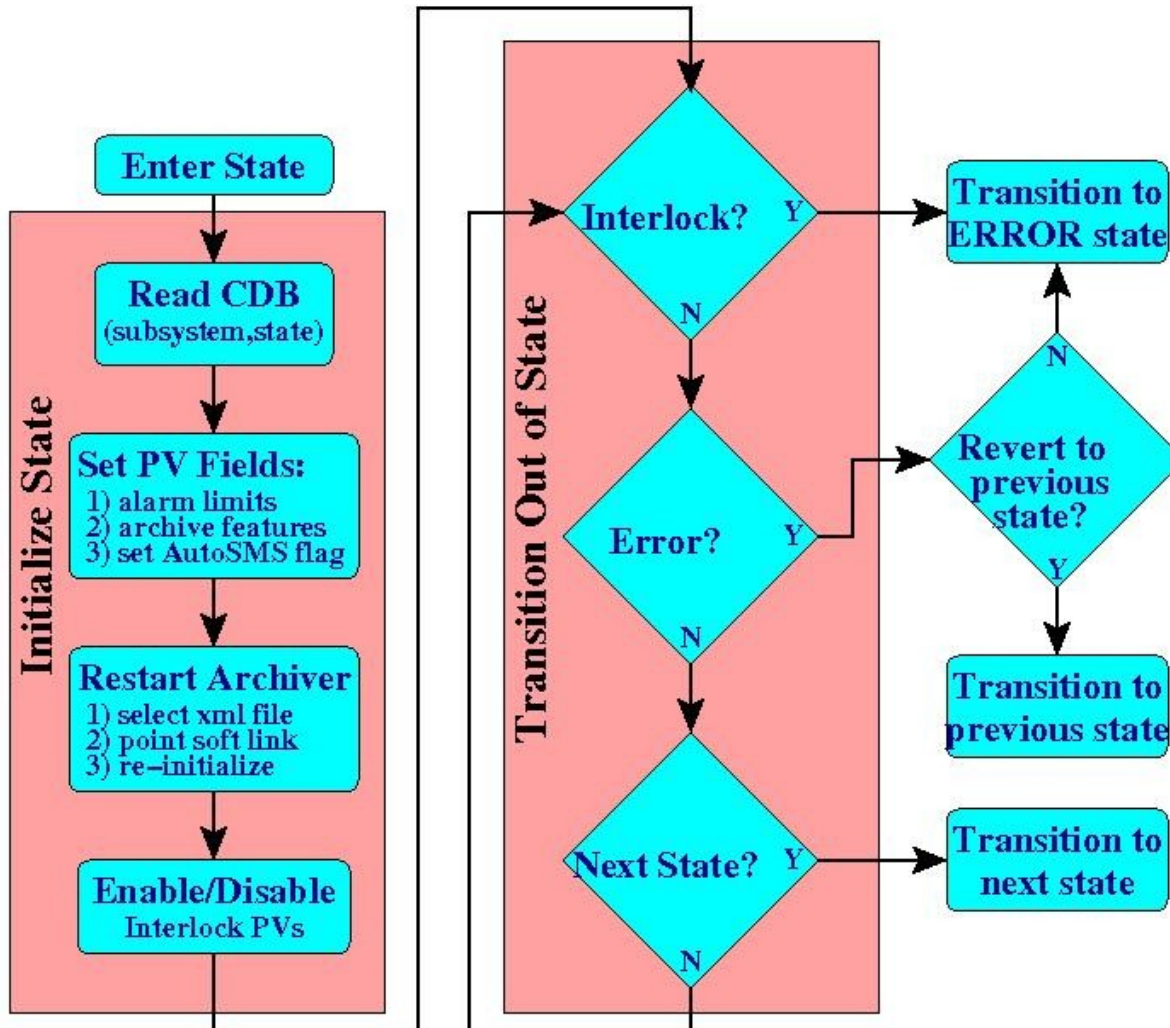
With installation/commissioning of the new controls HW (DL), the subsystems must be able to operate together, share resources, and not adversely affect each other. These are handled by:

- **State Machines for each major subsystem**
- **Mother State Machine**
- **Run Control**

Documented in MICE Note 431



State Machines





State Machines

Existing State Machines:

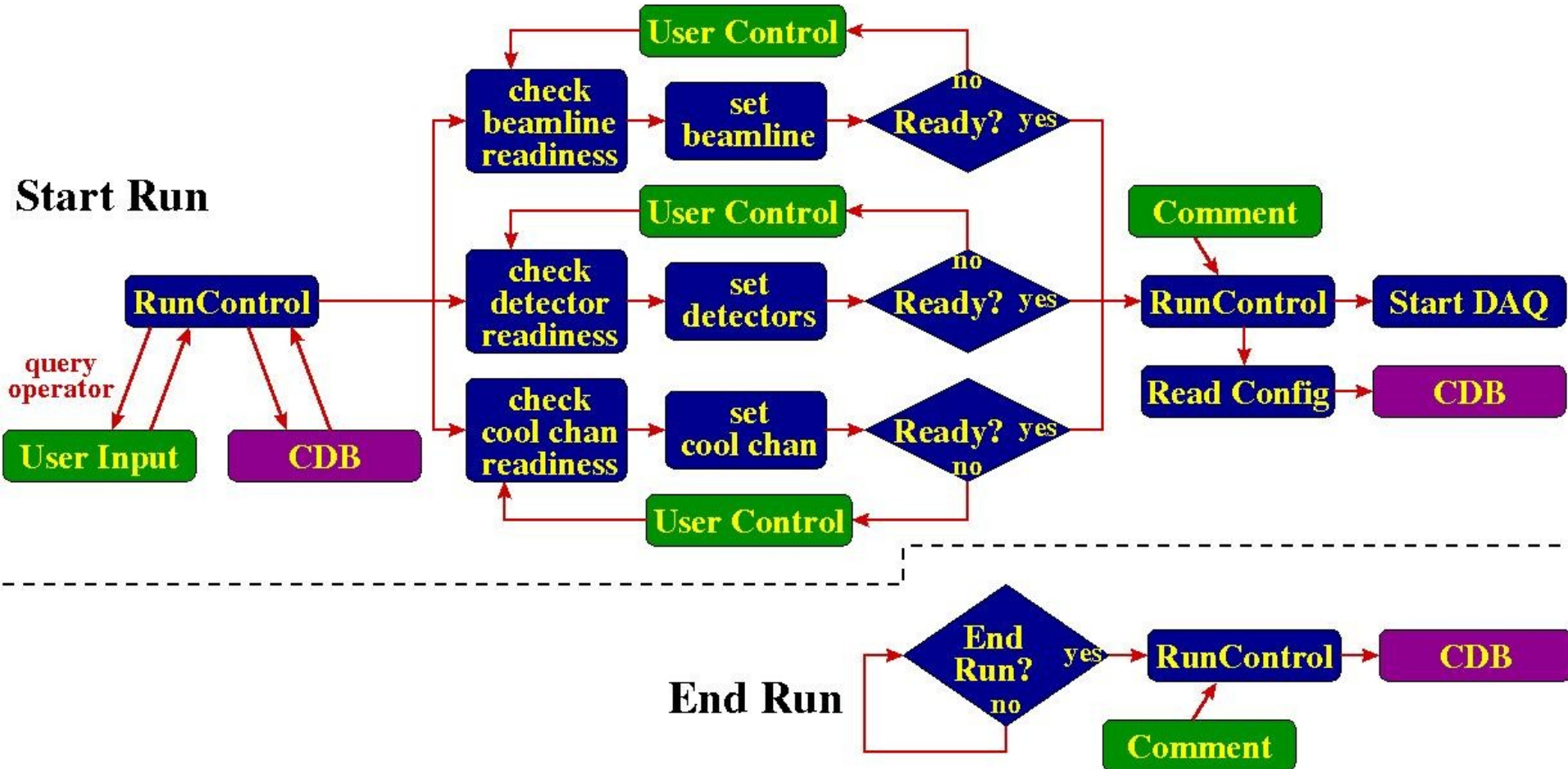
- **SS1**
- **FC1**
- **DS**

Still need:

- **Target**
- **Beamline**
- **Tracker**



Run Control





Other Items

- **Risks**
- **Infrastructure - (see Ian's talk)**
 - **computing**
 - **code repository**
 - **documentation**
- **Cleaning up**



Risks

- **Personnel**
- **Expertise**
- **Time**
- **Need to identify SS/FC differences in stand-alone and integrated systems**
- **Documentation**
- **Testing**



Cleaning Up

- **Many old configuration files need cleaning up:**
 - **alarm handlers**
 - **archiver**
- **Chris Heidt is on board**



Conclusions

- **Much progress since CM37**
- **Restructuring in progress**
- **Will soon have 4 Superconducting solenoids**
- **Needs to be finished within 10 months!**