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# ESS Integrated Control Systems



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# ICS Scope & !Scope

- Develop, commission and operate control systems for all technical areas of the program: Accelerator, Target, Instrument, Infrastructure
- Data acquisition for neutron science experiments is not (yet) in scope
- Data management for neutron science experiments is not in scope

# ICS Construction Plan

- Final Design
- Control System Components
- Device Integration
- Commissioning
- Collaborative Infrastructure

# ICS Components

- Timing system
- Machine Protection System (MPS)
- BLED: configuration and data management
- Front end HW platforms
- Services (Alarm, Archiving, Save & Restore,...)
- CS Networks
- High level applications
- Machine model
- Control room and data center

# BLED

- Lattice configuration
- Online model
- Device database and EPICS configuration
- Installed device tracking
- Archiving and logging
- Tools to enable program and cross divisional data integrity

# Device Integration

(Requirements, Design, CB integration, HMI, Documentation, Testing, Procurement)

- Accelerator
- Target
- Instruments
- Conventional facilities (HVAC, water, power, etc.)
- Cryogenics (3 plants )
- Test stands (Lund, Uppsala, Saclay, ...)

# Commissioning

(Acceptance QA, Test & Commissioning, Installation & Integration)

- Accelerator
- Target
- Instrument
- Conventional facilities
- Cryogenics
- Control System components (Timing, MPS, Services, Networks, BLED, Common applications )

# Collaborative Infrastructure

(Design, Development, Prototyping, QA & Testing, Procurement)

- Control Box
- Scientific computing and development environment
- Data center
- Management and In-kind contributions



# Summary

- ICS will exist as a program organization in the construction phase
- Cross functional task forces for ICS established during 2011-2012 by program office to enable pre-construction decisions
- Planning for construction is well advanced, requirements are being written and TDR draft on track
- Final scope and interfaces will be defined by Q4 2012