Control System / Applications

Operators Training

J.Fitzek

10.04.2018

Agenda

- Applications
  - Basics
  - Device-oriented Applications
  - Scheduling and Settings Management
  - Status Applications, Measurement & Feedback Applications
  - Overview Fixed-Display Applications (Big Screens)
  - Misc
- Outlook

Agenda

- Applications
  - Basics
    - Sequencer
  - Device-oriented Applications
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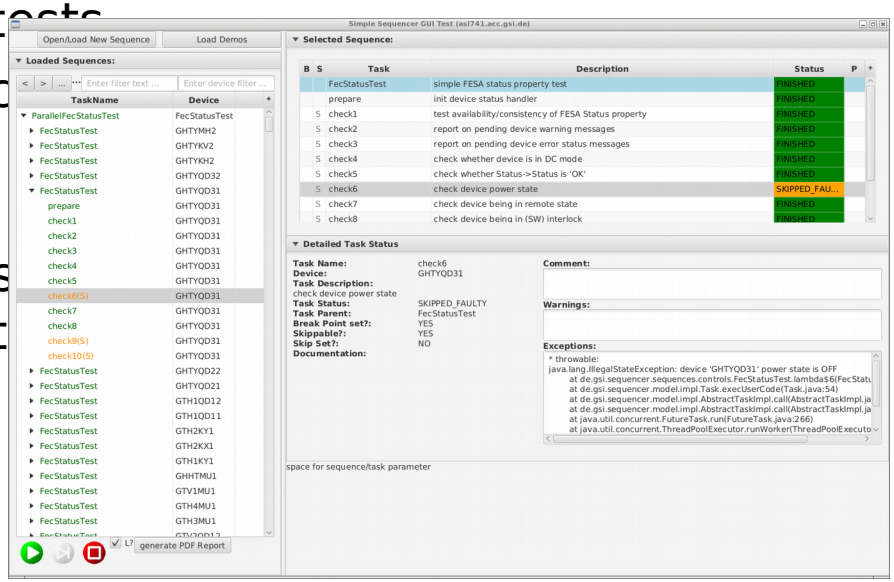
Sequencer

- Execute a bunch of tasks, can be combined to larger sub-sequences
- Saves a lot of manual work
- Helps with diagnosis and to clearly identify problems
- Range of Functionality:
  - Logging, protocol of executed tests
  - (semi-)automated test sequenc (unit-style HW testing)
  - user-driven execution and configuration of test sequences (by non-Java equipment expert



Agenda

- Applications
  - Basics
  - Device-oriented Applications
    - DeviceControl
    - EquipState
    - EquipMonitor
  - Scheduling and Settings Management
  - Status Applications, Measurement & Feedback Applications
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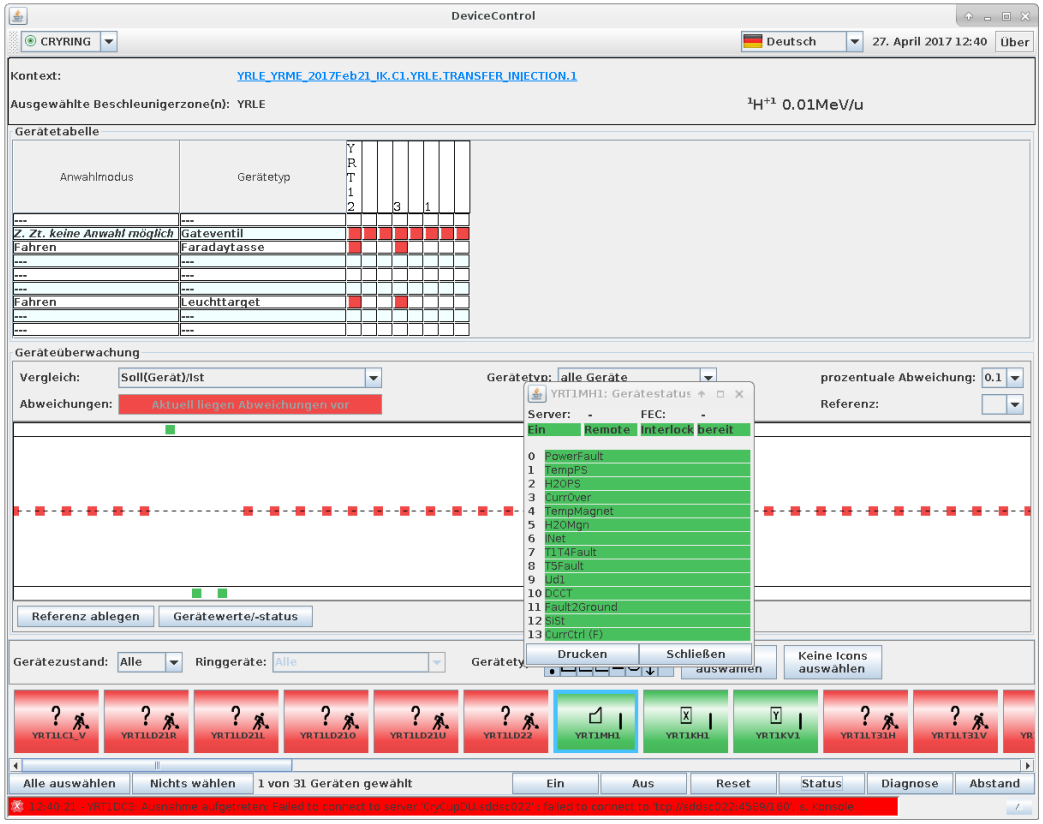
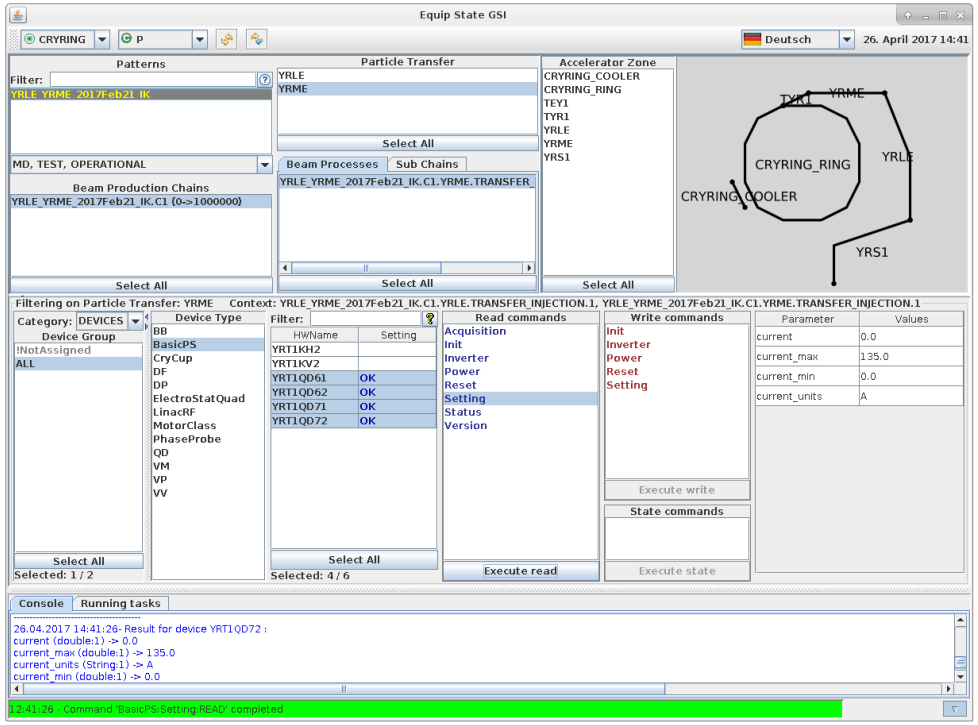
Device Control

- Control on Device Level:
  Status, Set-Actual-Value comparison, Switch on / off, control drives



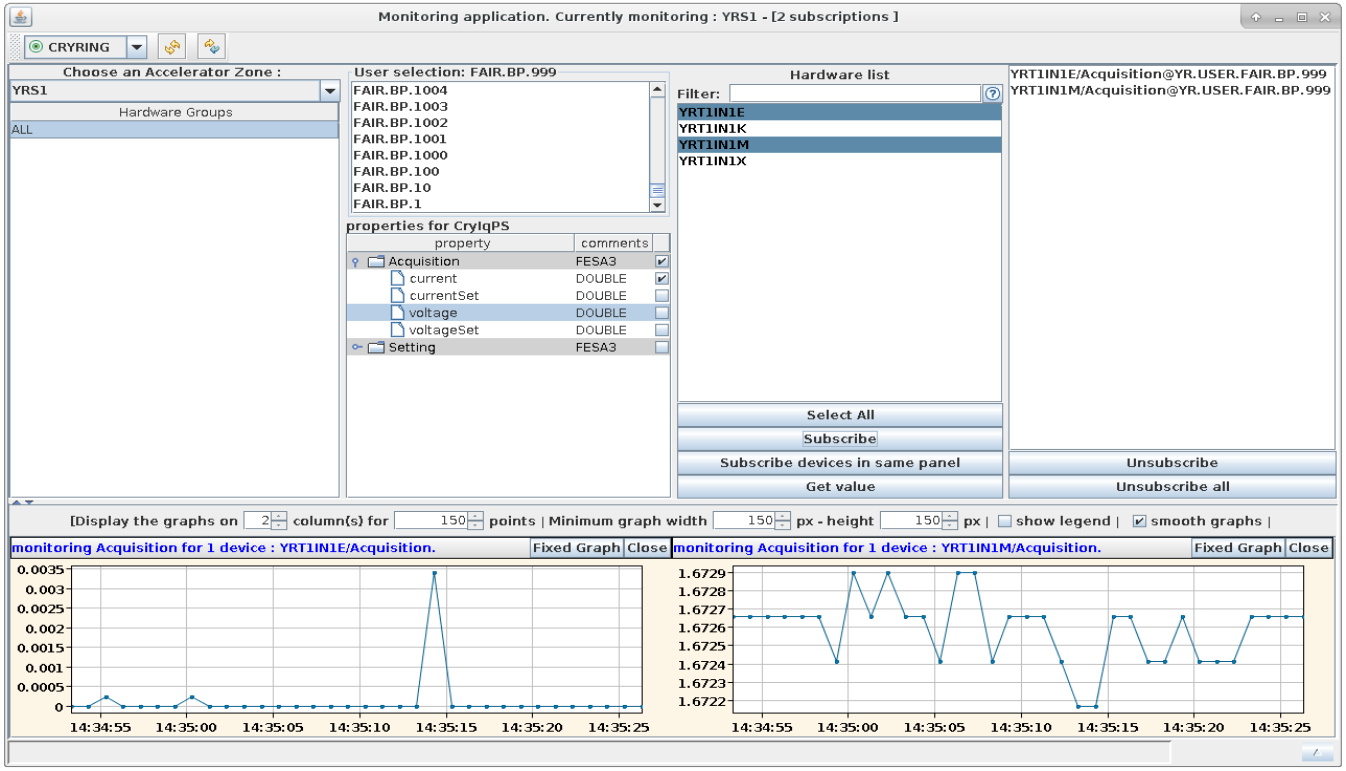
Expert Tool: EquipState

- EquipState: Set/Read all properties of the devices (comparable to FESA Explorer, bit less „low-level“)
- Used for Dry Runs, Commissioning, Error diagnosis



EquipMonitor

- EquipMonitor: Subscribe to all properties of the devices
- Will be replaced in the future by the Archiving System GUI



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- Applications
  - Basics
  - Device-oriented Applications
  - Scheduling and Settings Management
    - Ion Source Application
    - Scheduling Application
    - ParamModi
  - Status Applications, Measurement & Feedback Applications
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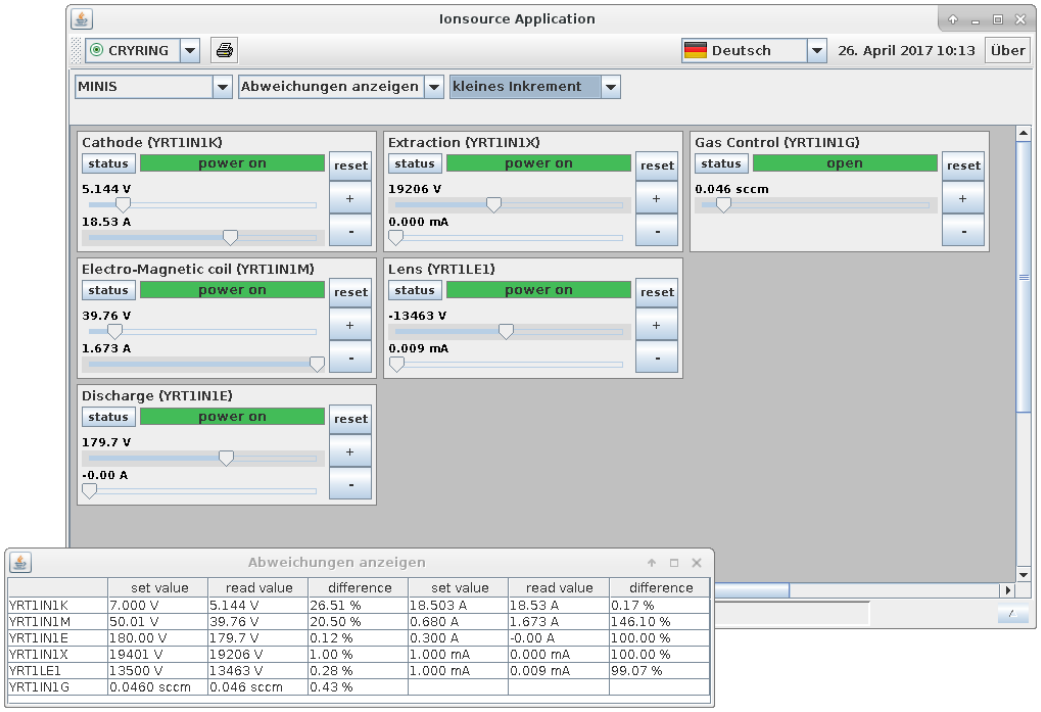
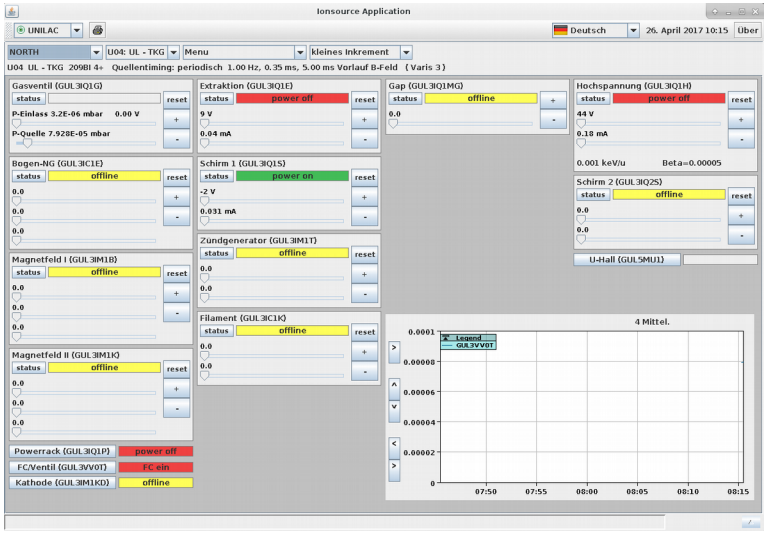
Ion Source Application

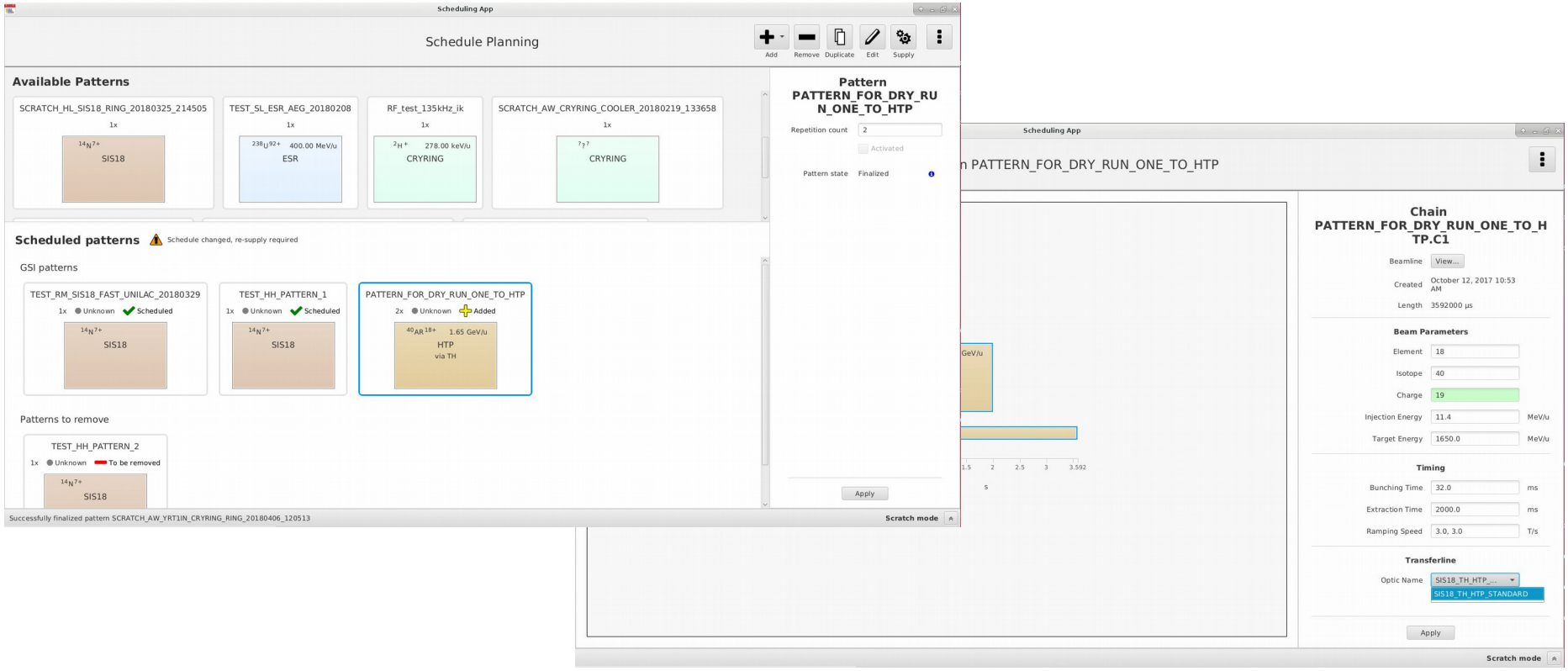
- Generic Ion Source Program for FAIR,
  used at Cryring (operational) and Unilac North/South (first prototype)





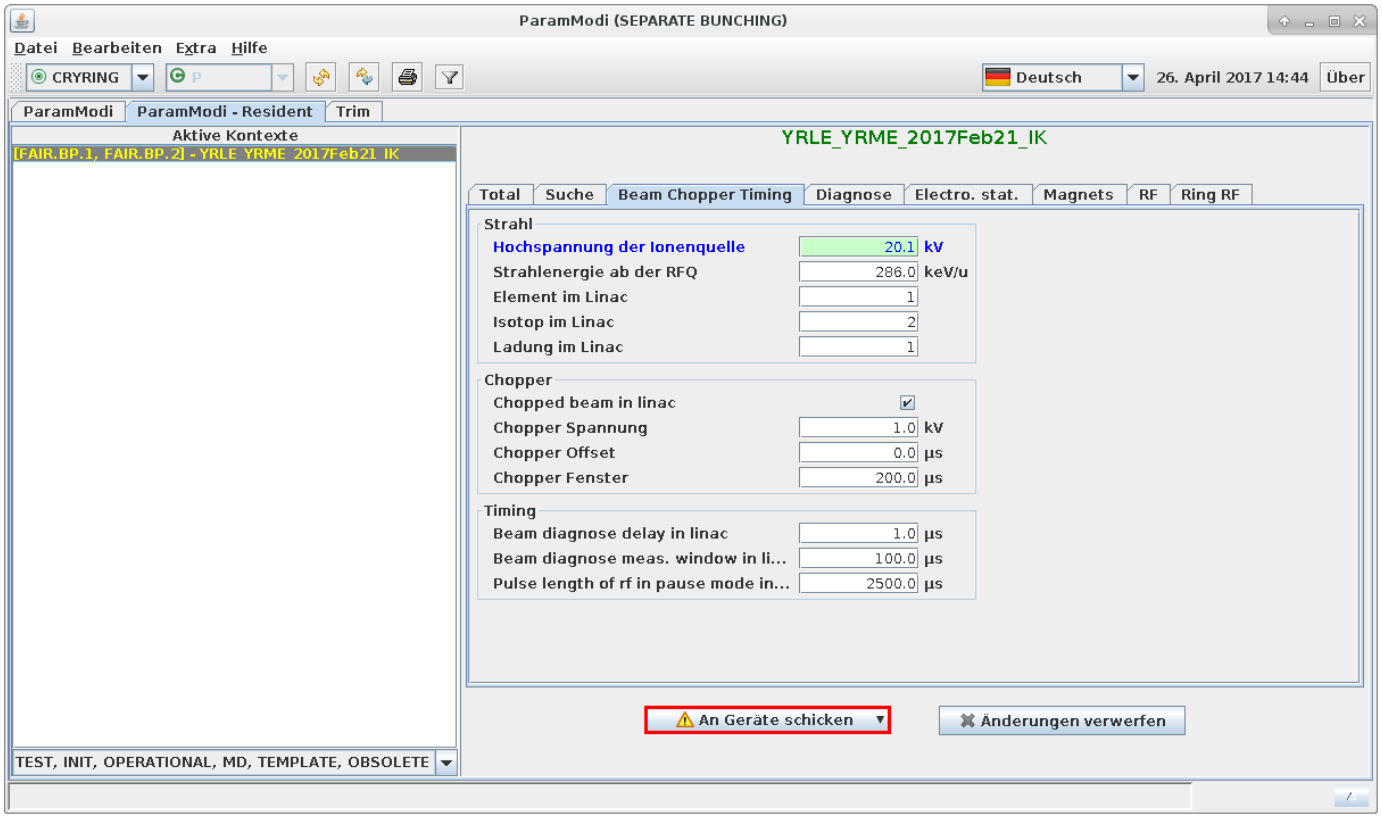
Scheduling Application

- Plan and execute patterns
- Comparable to the “Init” application



ParamModi

- Central Application for trimming set values
- View the settings on all levels of the hierarchy (plus expert trim)



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    - Profile Grid Application
    - MASP Application
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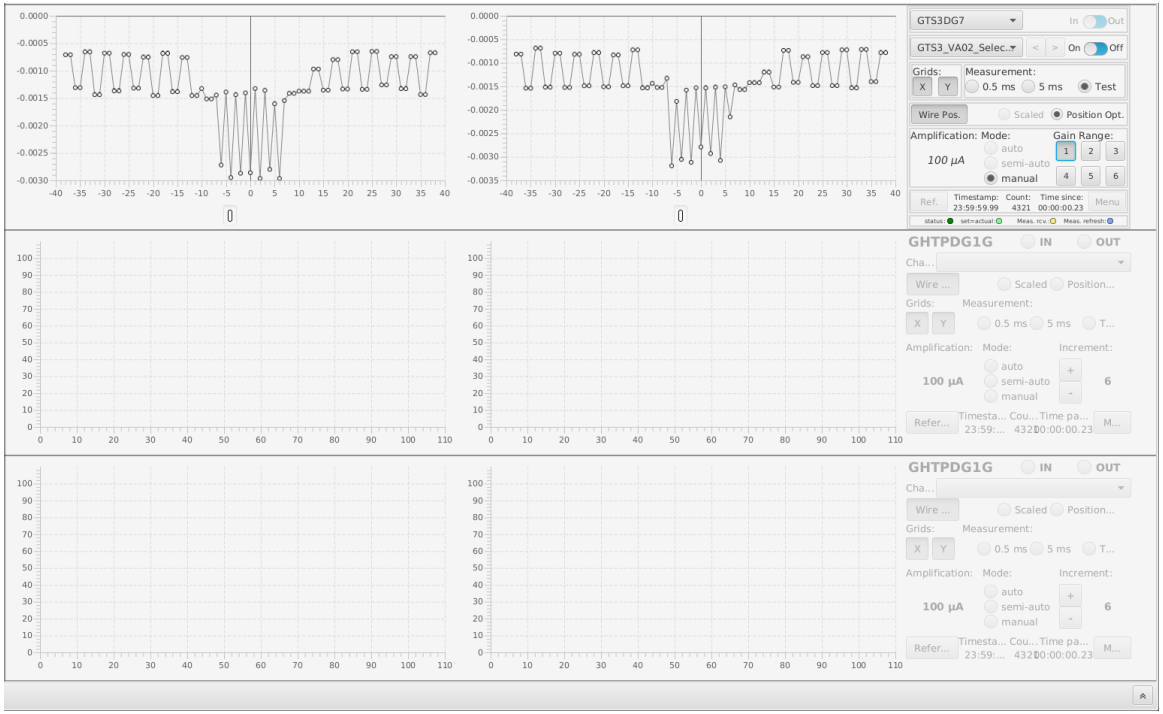
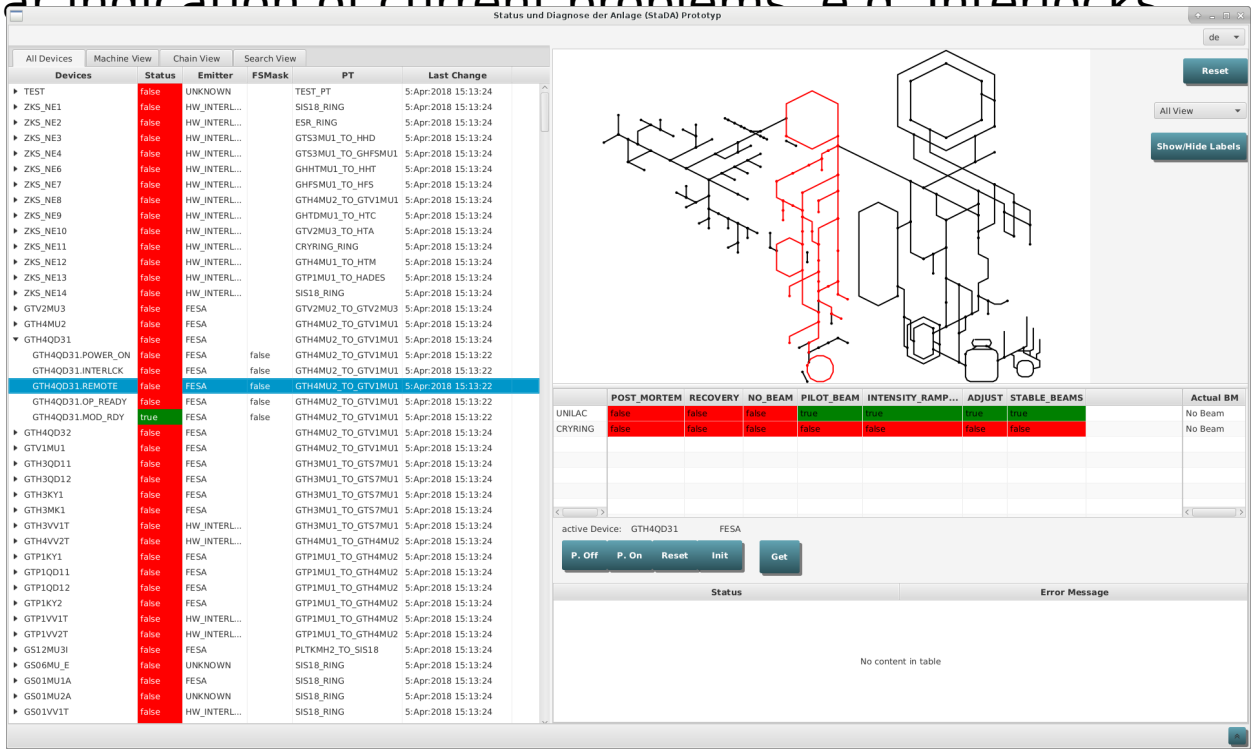
Profile Grid Application

- Remake of the existing Profile Grid Application
- More tests during the upcoming Dry Run #7



MASP Application – Facility Status

- Displays information of the MASP (Master Accelerator Status Processor),
  display the status of the whole machine:
  - Clear indication of current problems, e.g. Interlocks



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    - FCC Overview (“Page 1”)
  - Misc
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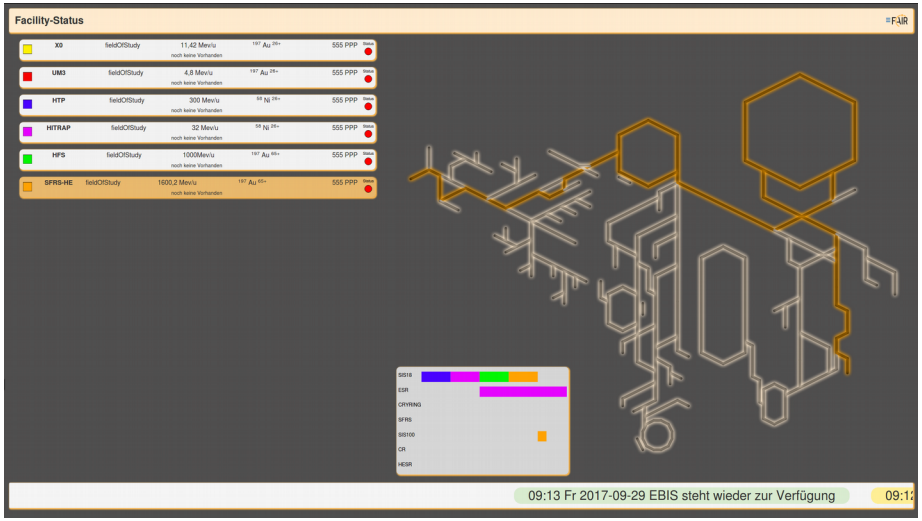
FCC Overview Application, “Page 1”

- HKR / FCC Overview Application
  - Which beams are running?
  - What is their status?
  - Transmission, history
  - => fixed / detailed version for the control room,
    short (possibly rotating) version for the canteen



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    - Requester Application
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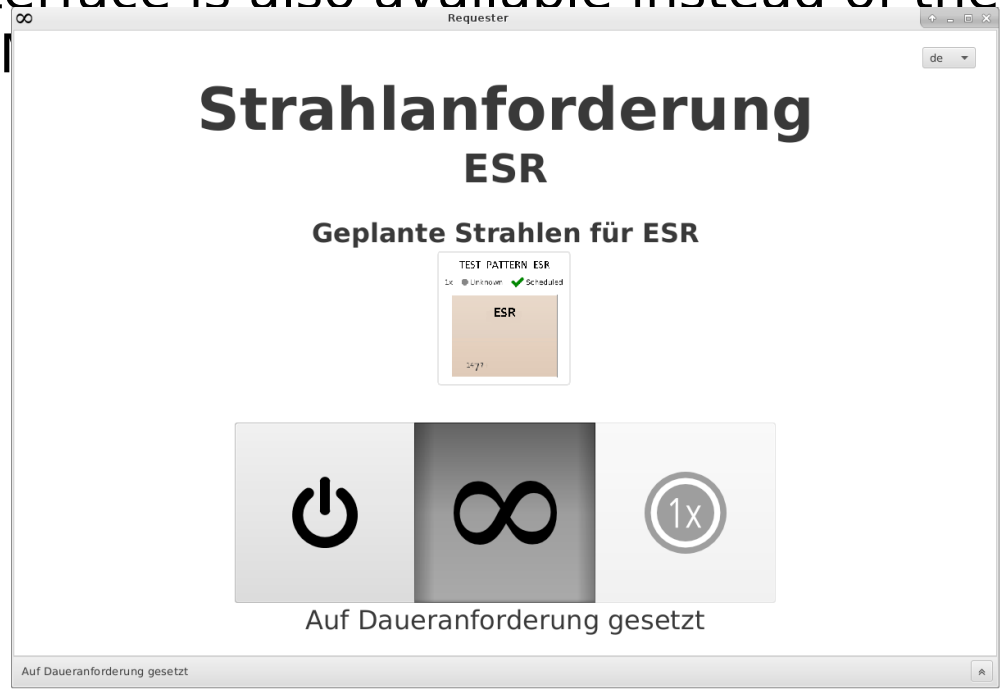
Requester Application

- Replacement of the old “Anforderungseinheit”
- Requests are now handled in Software by the Request Processor
- A REST interface is also available instead of the Application (e.g. Cavel



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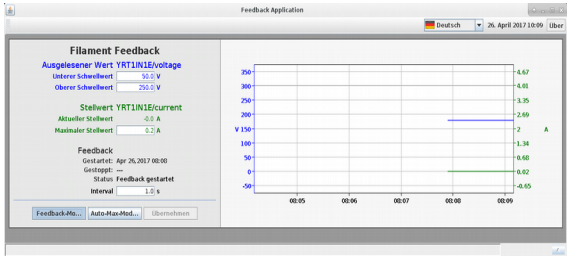
More upcoming applications

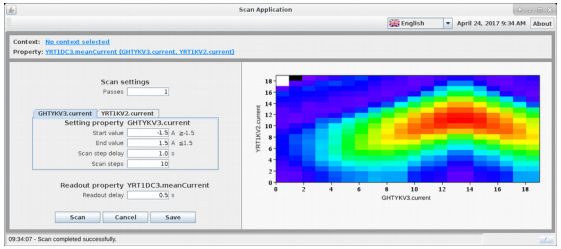
- Status Applications, Measurement & Feedback Applications
  - Schedule Control: display+control execution status of current patterns/chains (beamtime)
  - Digitization of Analog Signals GUI (beamtime)
  - Beam-based feedbacks together with machine physicists (summer 2018)
    - LSA-based Orbit Feedback (proof-of-concept during beamtime 2016)
    - LSA-based Macro-Spill & Harmonics Control (proof-of-concept 2016)
  - Beam Transmission Monitoring Application (later)
- Overview Fixed-Display Applications (Big Screens)
  - Single Machine Status Info (beamtime)
  - Facility Status Overview: light-weight version of the MASP application (planned)

Machine-specific applications as prototype

- Applications so far only used for Cryring
  - Feedback Application for Cryring Ion Source



  - Scan Application



=> collect ideas for a more generic application that can be used at other places too

Questions?

Please also come to see us during the Dry Runs (=> contact Mariusz)