

# EUDAQ Status Report

Emlyn Corrin, 29 September 2010

- Recent Improvements
- Future of EUDAQ
- Summary
- Some Statistics

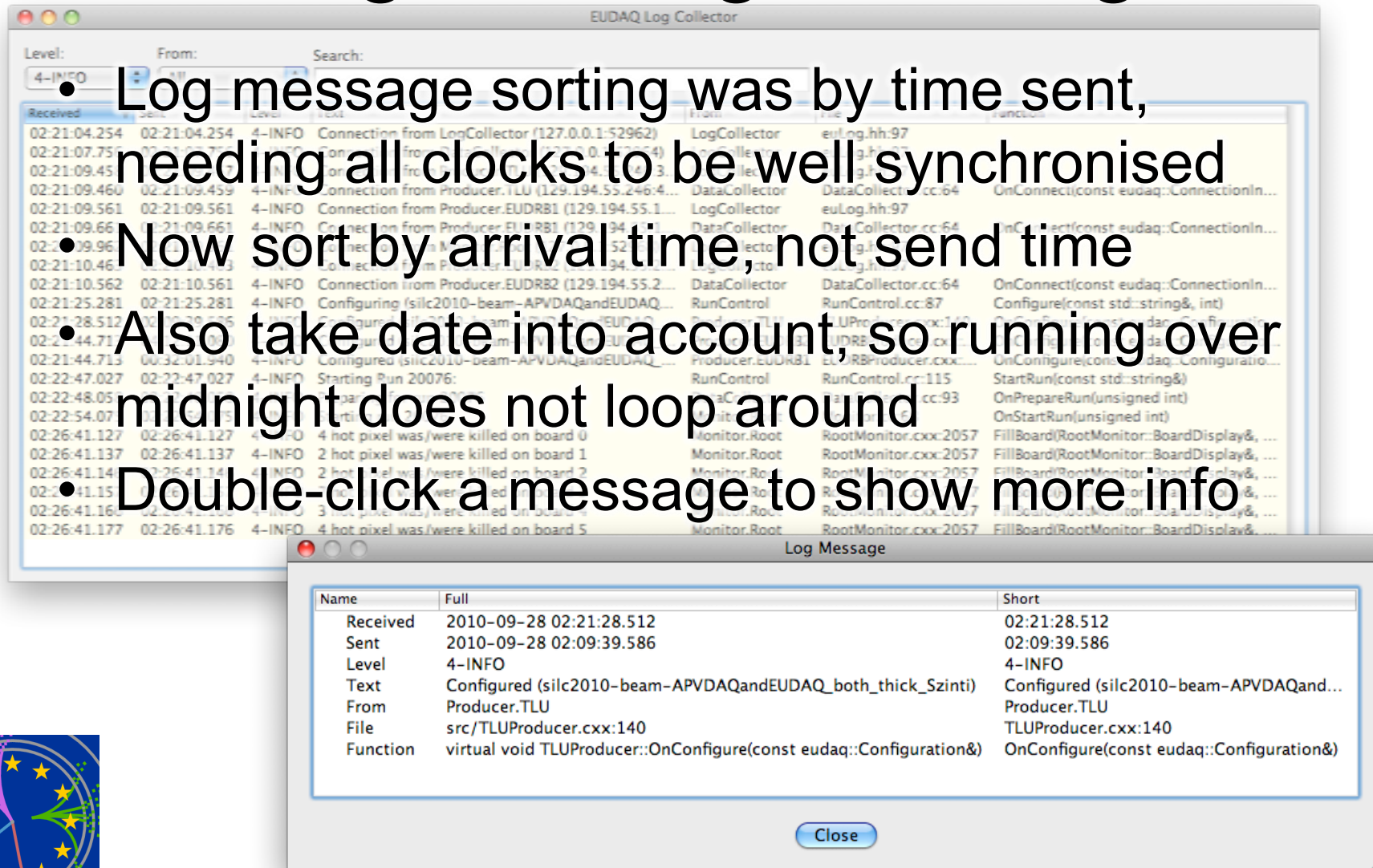


## ➤ Recent Improvements

- Log Message Sorting
  - Run Control Status Display
  - Stability
  - TLU Synchronization
  - User Manual
- Future of EUDAQ
  - Summary
  - Code Statistics



# Log Message Sorting



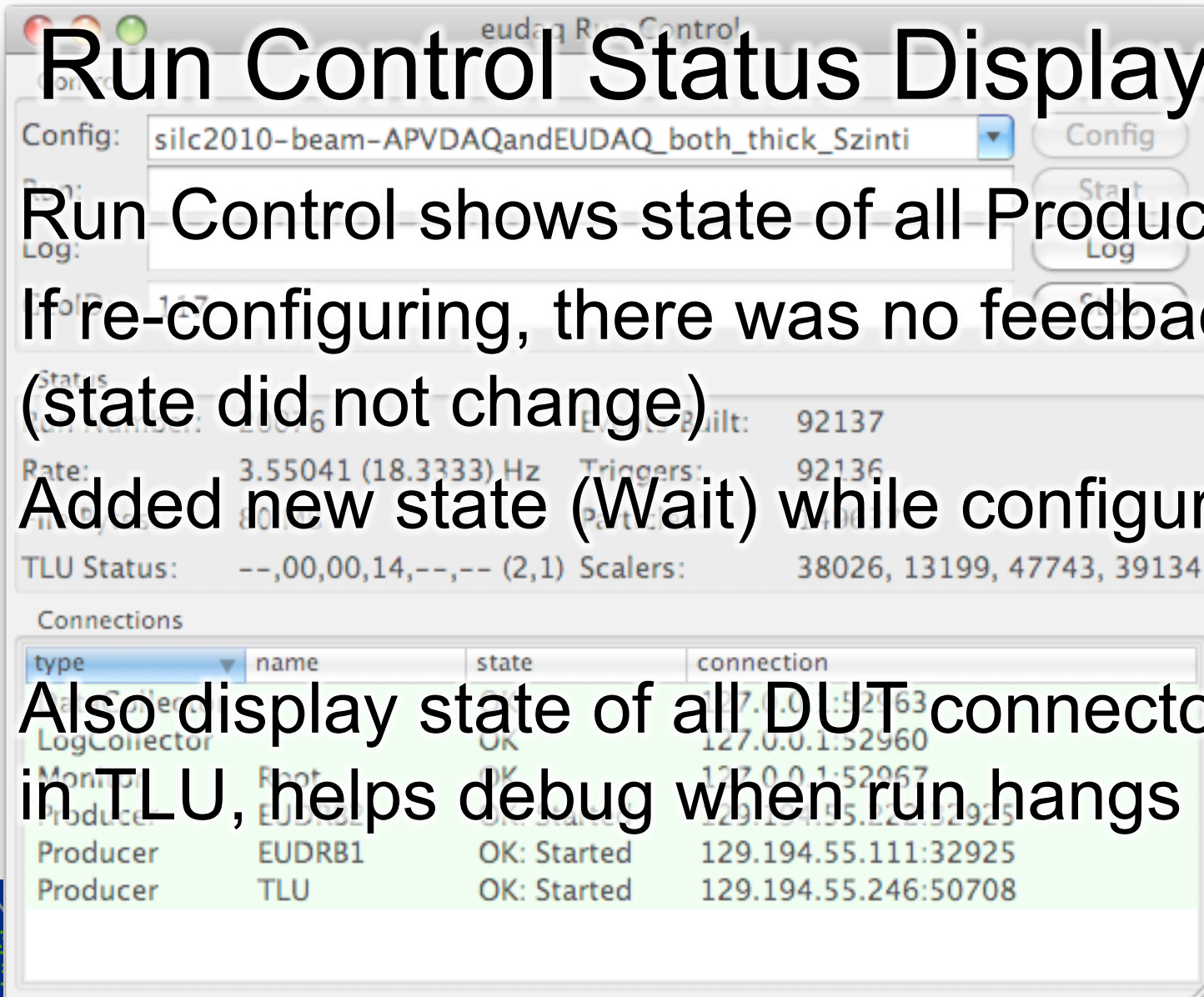
- Log message sorting was by time sent, needing all clocks to be well synchronised
- Now sort by arrival time, not send time
- Also take date into account, so running over midnight does not loop around
- Double-click a message to show more info

| Name     | Full                                                               | Short                                    |
|----------|--------------------------------------------------------------------|------------------------------------------|
| Received | 2010-09-28 02:21:28.512                                            | 02:21:28.512                             |
| Sent     | 2010-09-28 02:09:39.586                                            | 02:09:39.586                             |
| Level    | 4-INFO                                                             | 4-INFO                                   |
| Text     | Configured (silc2010-beam-APVDAQandEUDAQ_both_thick_Szinti)        | Configured (silc2010-beam-APVDAQand...   |
| From     | Producer.TLU                                                       | Producer.TLU                             |
| File     | src/TLUProducer.cxx:140                                            | TLUProducer.cxx:140                      |
| Function | virtual void TLUProducer::OnConfigure(const eudaq::Configuration&) | OnConfigure(const eudaq::Configuration&) |



# Run Control Status Display

- Run Control shows state of all Producers
- If re-configuring, there was no feedback (state did not change)
- Added new state (Wait) while configuring
- Also display state of all DUT connectors in TLU, helps debug when run hangs



# Stability

- Early this season DAQ would crash at start of new run with  $\sim 50\%$  probability
- Caused by resetting TLU timestamp counter at beginning of run
- Now back to state where it can be left to run unattended overnight (and have a reasonable expectation of some data in the morning)
- Still a few crashes, but seem to be due to hardware (fixed by reprogramming sensors)



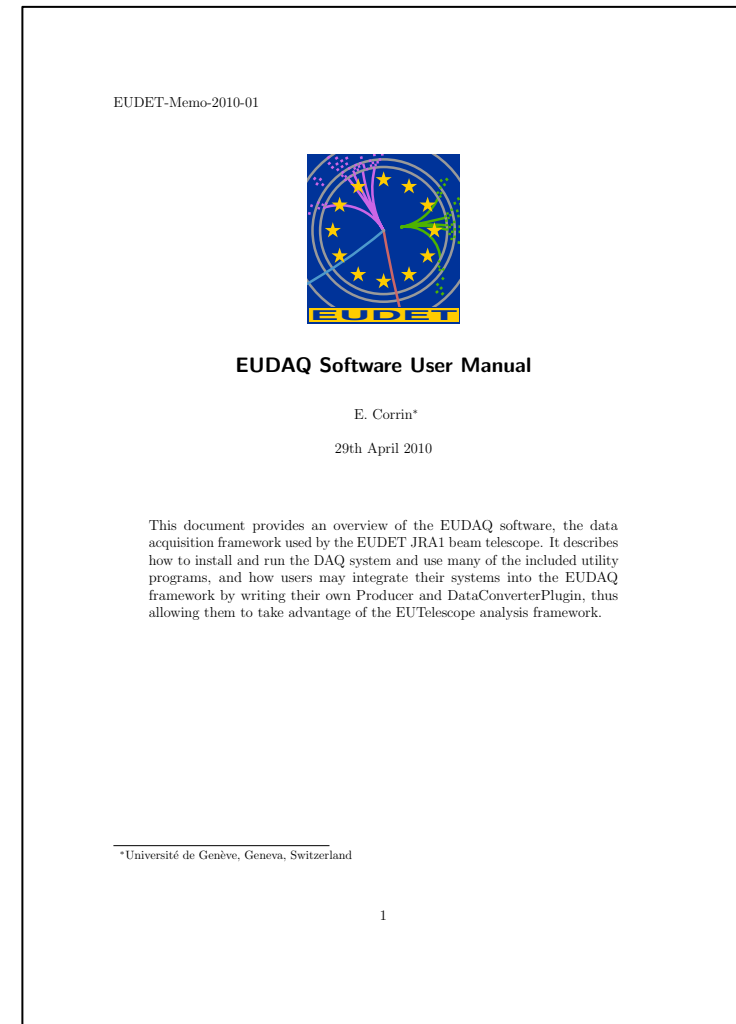
# TLU Synchronization

- TLU Handshake should protect against a DUT missing a trigger
- But it can happen that a DUT sees a spurious trigger (e.g. due to noise)
- Data files then get out of sync
- Tool written to correct this offline
  - Either as a separate step
  - Or during the conversion to LCIO



# User Manual

- Finished (at last) early this year
- Recommended reading for anyone interested in EUDAQ
- EUDET Memo 2010-01
- <http://www.eudet.org/e26/e28/e86887/e86890/EUDET-Memo-2010-01.pdf>

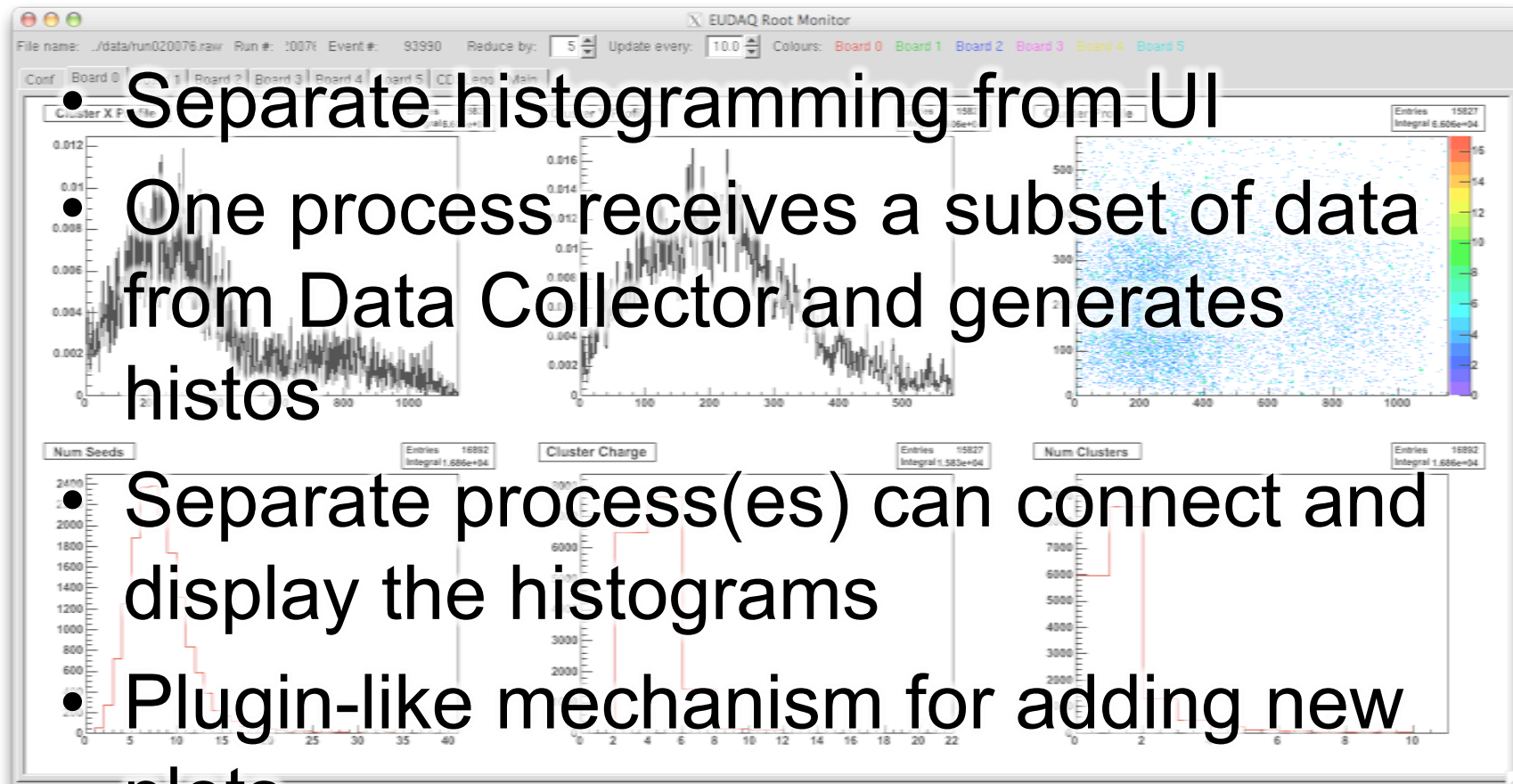


- Recent Improvements
- **Future of EUDAQ**
  - Monitoring
  - JTAG Programming Sensors
  - Data Collector
  - Others
- Summary
- Code Statistics





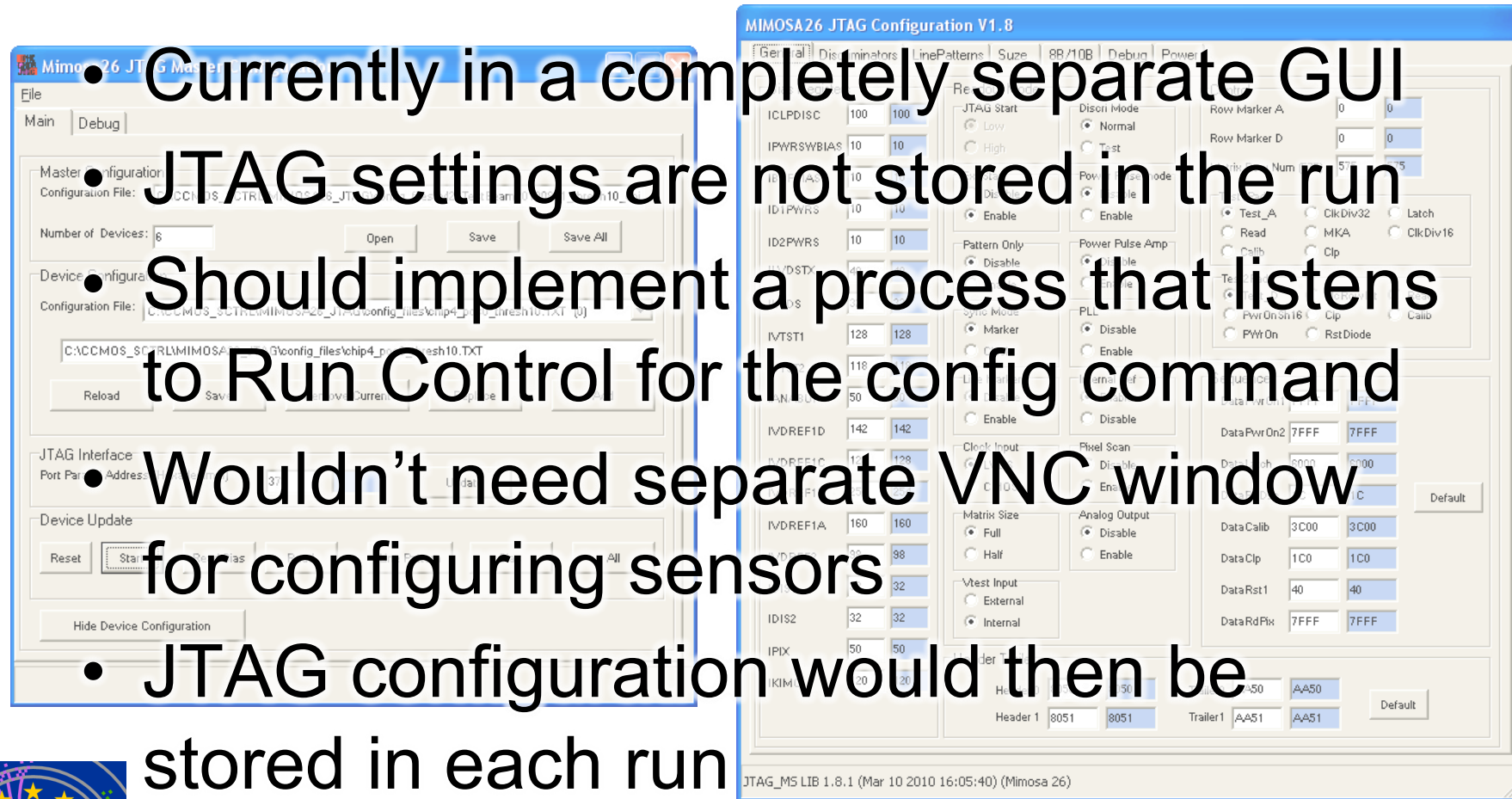
# Monitoring



- Separate histogramming from UI
- One process receives a subset of data from Data Collector and generates histos
- Separate process(es) can connect and display the histograms
- Plugin-like mechanism for adding new plots



# JTAG Programming



- Currently in a completely separate GUI
- JTAG settings are not stored in the run
- Should implement a process that listens to Run Control for the config command
- Wouldn't need separate VNC window for configuring sensors
- JTAG configuration would then be stored in each run



# Data Collector

- Currently just blindly takes all events in the order they arrive without looking at them
  - Can get desynchronised
  - At end of run some producers can have extra events remaining in the buffer
- Should at least check for errors
- Could also fix the most obvious problems
  - At least combine the EOREs properly



# Others

- Configure script
  - Installation currently requires some manual editing of Makefiles
- Testing framework
  - Allow automated checking of the code
  - Prevent regressions of bugs once fixed
- Distributed version control (git/mercurial?)
- Explicit license terms (GPL?)



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# Summary

- Limited new functionality
  - Concentrated on Usability/Stability
  - User Manual at last!
- Some improvements still needed
  - Monitoring needs rewriting
  - JTAG should be integrated into DAQ
  - Data Collector could be more intelligent
  - Configure script
  - Automated testing framework?





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# Code Statistics

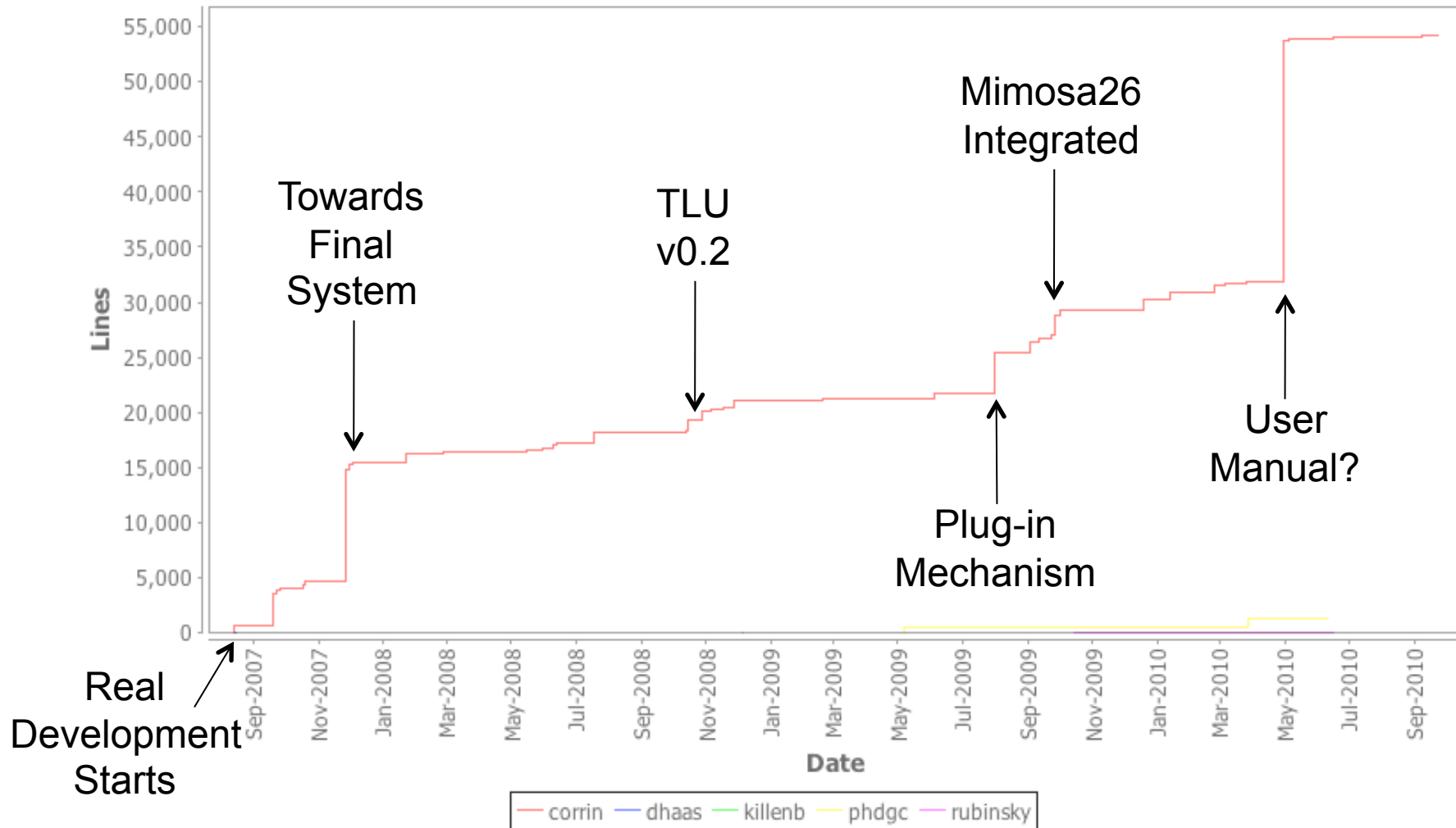
- First checked in to subversion repository in Feb 2007 (~30 source files)
- Now more than 350 source files in trunk (containing > 30 kloc)
- More than 1000 revisions
- 6 Developers registered (+ more changes by email)

| Author   | Commits | LOC   |
|----------|---------|-------|
| corrin   | 775     | 45263 |
| killenb  | 82      | 3933  |
| phdgc    | 50      | 1448  |
| renz     | 43      | 2132  |
| dhaas    | 39      | 449   |
| rubinsky | 12      | 119   |

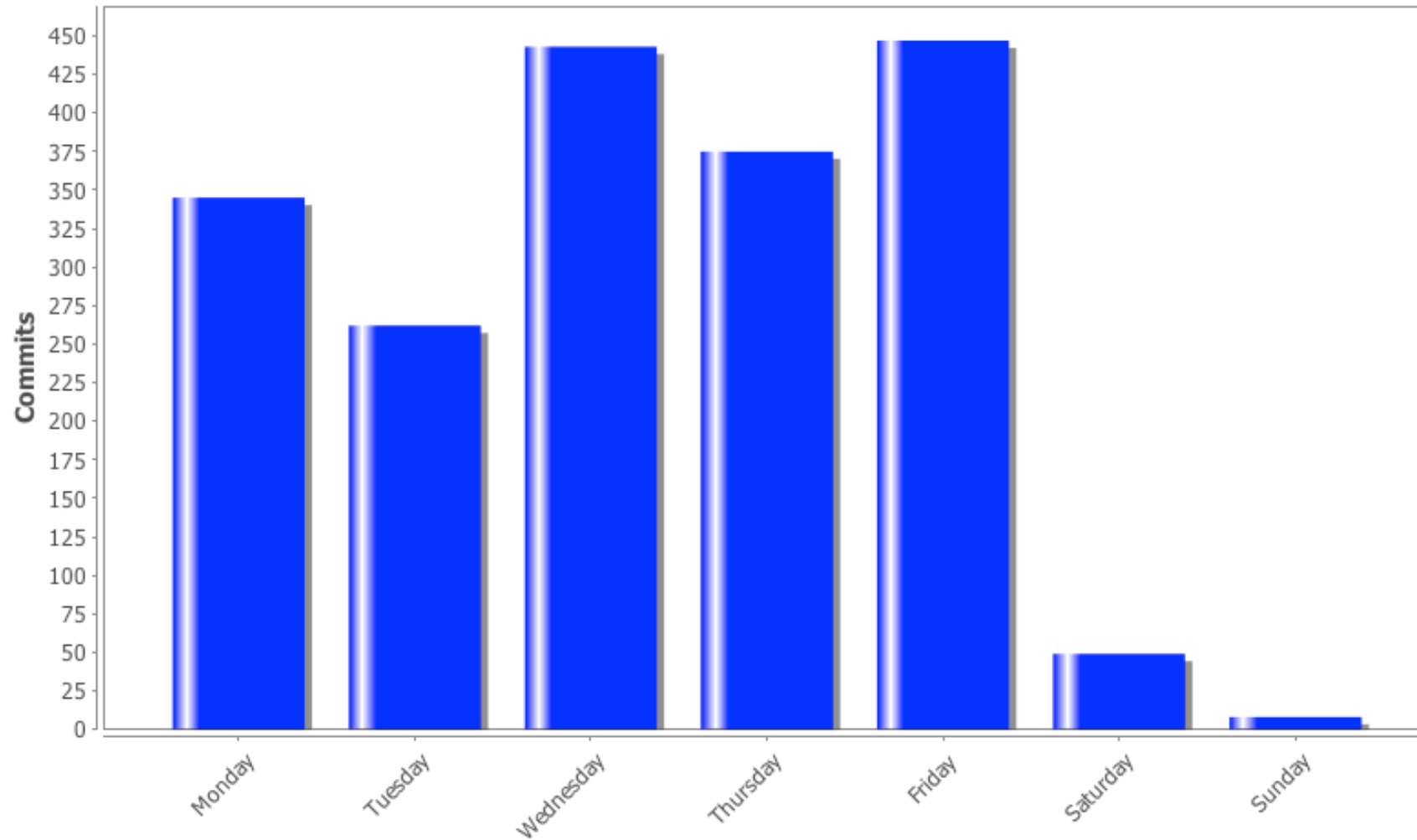




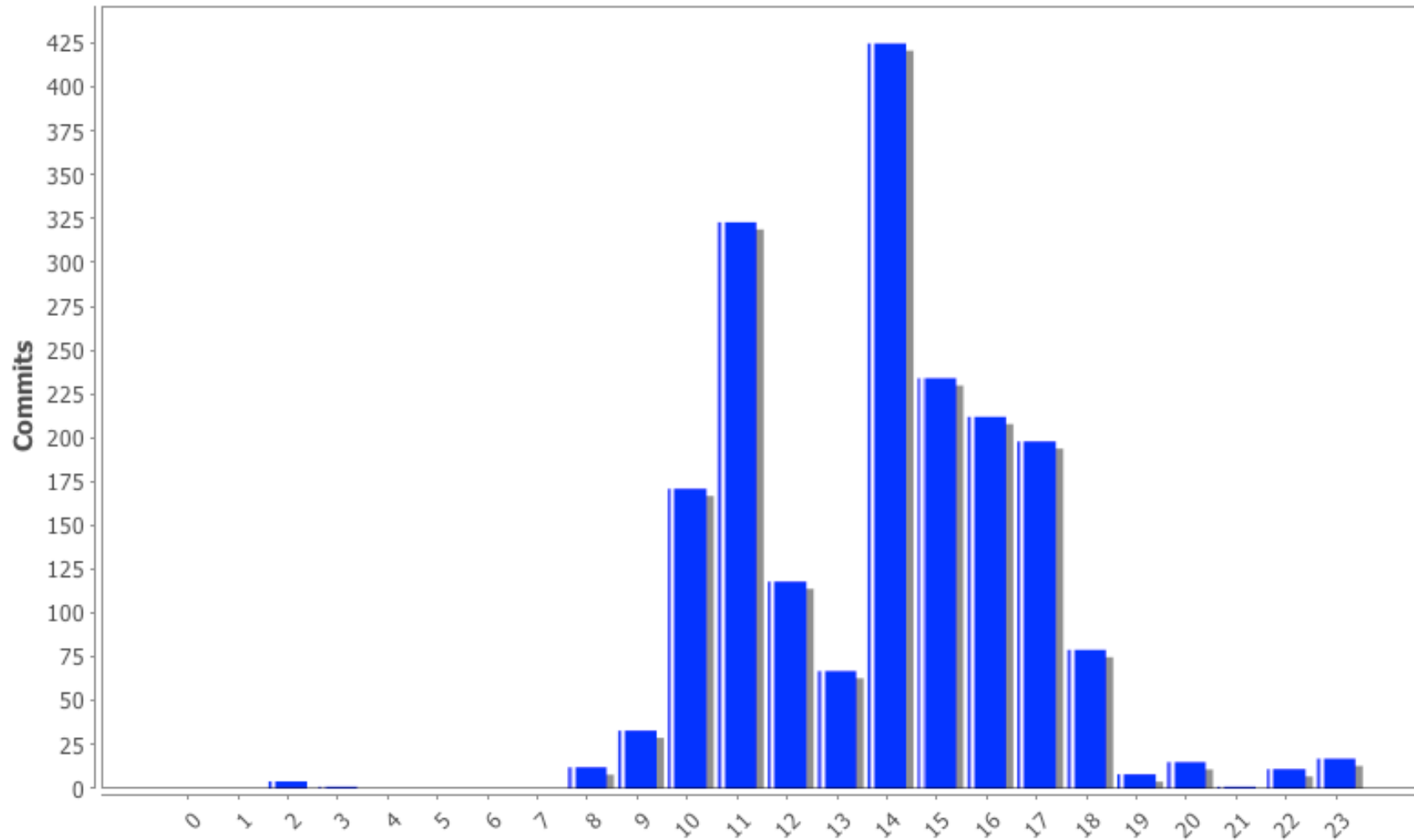
### /trunk: Contributed Lines of Code



### /trunk: Activity by Day of Week



### /trunk: Activity by Hour of Day



Tag Cloud of Words in Commit Log Messages

allow apix before board bore build **change** check clean **cleaned** cleanup  
clusterextractor **code** compatibility compilation compile **config** configuration  
converter correlation correlator cosmetic **data** datacollector debugging decoding default  
**depfet** directory disable draft **error** eudrb eudrbproducer event **file**  
firmware first **fixed** fixes fortis gettriggerid histo **improve**  
improvement include increase info joerg last lcio **library** linux make **makefile** marker merged  
**message** mimosa18 **minor** missing **mode** moved number option **output** pedestal pixel plots  
preliminary producer program properly range raw2 read **remove** root **rootmonitor**  
runcontrol script size standardevent start startrun **status** support svnsync sync test testreader  
timestamp tluproducer **tweak** **updated** version **warning** window working **zestsc1**

