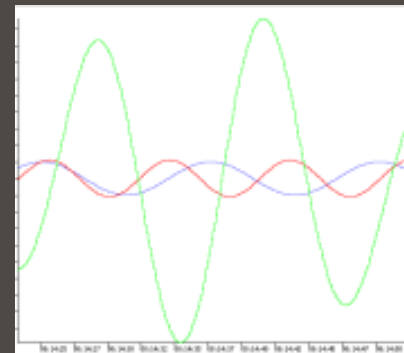


# Qt Applications at TRIUMF

Epics Collaboration Meeting – Lund May 2016

**Rolf Keitel**



- 20 Years this January !!!
  - Thanks to everyone who helped us with
    - software
    - advice
    - reviews
- Transitions
  - Sun/Solaris → x86/Linux
  - Motorola MV162 / VxWorks → x86/Linux, Arm/Linux
  - edd/dm → edm
  - Capfast™ → tdct
  - EPICS 3.12.2 → EPICS 3.14.12
- Constants
  - Trar ASCII archiver
  - burt
  - StripTool
  - Alh

# Next Transitions

- Motif → ???
  - CSS? Qt?
- Qt
  - StripTool → TChart
  - Alh → TAlh

- My wish-list
  - use CA monitors
  - pan into archived data
  - write data to file (all – not just display buffer, optional)
  - retrieve saved data files
  - retrieve saved data from different TChart instances
  - retrieve archiver data
  - use retrieved data as background

- Status

- Implementation

- uses QCustomPlot Widget (<http://qcustomplot.com/>)
    - use CA monitors
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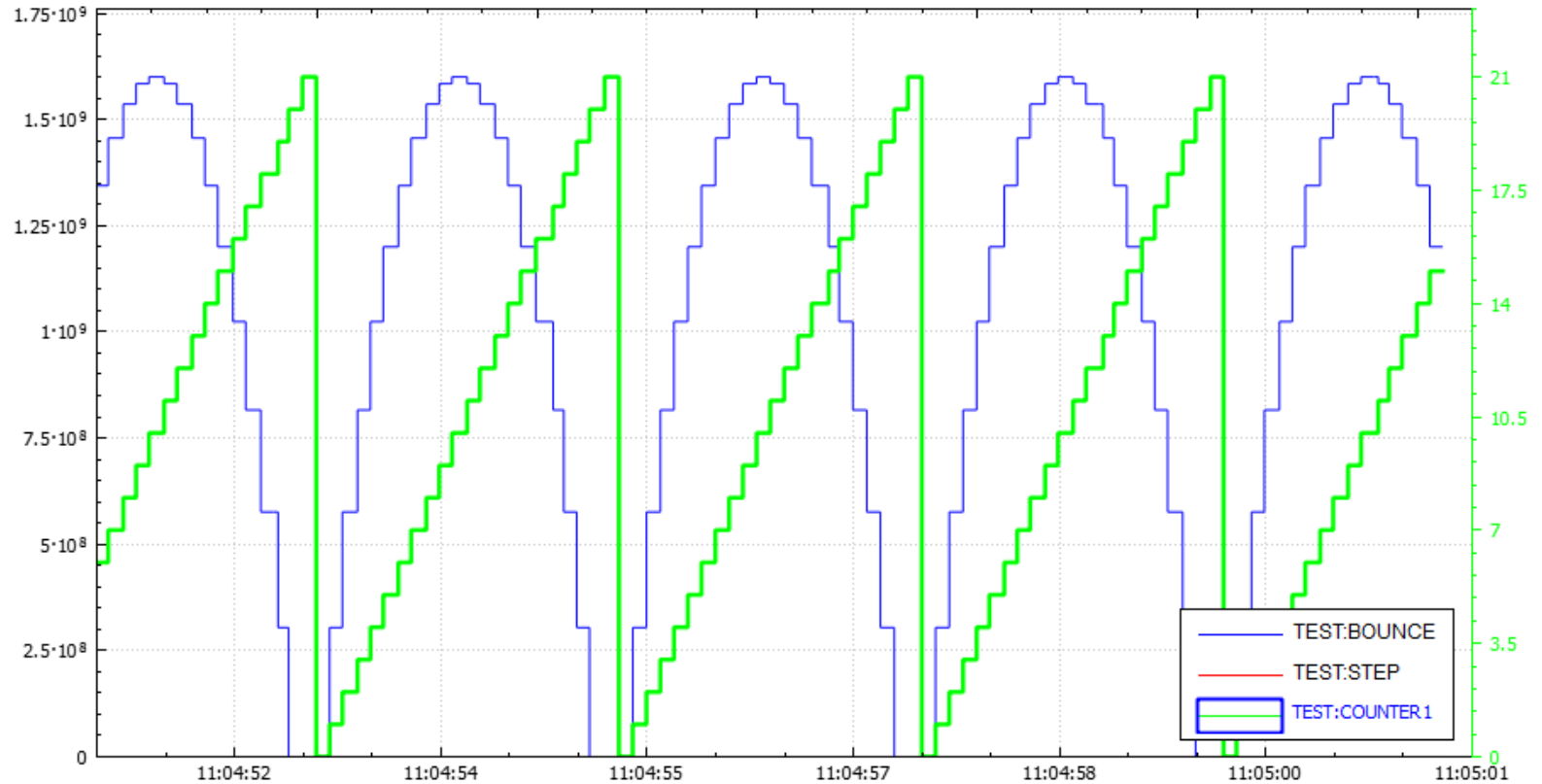
- Testing

- beta - finished
    - RC1 with operations group

TChart 0.96 - no data writing -



File Traces View Help



TEST:BOUNCE: 1.20e+09 TEST:STEP: 9.40 TEST:COUNTER1: 15.00

Strip Control

Start Strip

Pause

Finish Strip

Vertical

zoom reset || X ^ v remember recall anchor 0

- Log10
- Auto

Horizontal

zoom reset <> >< < > |< >| anchor left

- Scroll



# Tchart – next steps

- wishful thinking?
  - make archive retriever a proper plug-in

- My wish-list
  - replacement for Alh (functionality we use at TRIUMF)
  - improve UI
  - configuration editor (add/remove/modify alarms)
  - "channel watcher" - non-permanent

- Status
  - Implementation
    - can fully parse AIh configuration files
    - replacement for AIh (the way we use AIh at TRIUMF)
    - improve UI
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    - improve UI
    - configuration editor (add/remove/modify alarms)
    - "channel watcher" – non-permanent
    - still missing for Alh compatibility:
      - alarm filters
      - force PVs
      - severity PVs
      - .....



- Status

- Implementation

- can fully parse Alh configuration files
    - replacement for Alh (the way we use Alh at TRIUMF)
    - improve UI
    - configuration editor (add/remove/modify alarms)
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      - .....



- Testing

- beta - finished
    - RC1 with operations group



Hierarchy (inactive: 1 disabled: 1)

Group	Severity	Acks	Status	Value
MainGroup	INVALID	INVALID		
Analog	MAJOR	MAJOR		
Phase 1 Cold Box System Fault	NO_ALARM	NO_ALARM		
Phase 1 Compressor Speed Out of Range	NO_ALARM	NO_ALARM		
Bottom Temperature Out of Range	NO_ALARM	NO_ALARM		
Bottom Temperature Out of Range	NO_ALARM	NO_ALARM		
Centre Temperature Out of Range	MAJOR	MAJOR	HIHI	130
Left Temperature Out of Range	MINOR	MINOR	HIGH	75
Right Temperature out of Range	NO_ALARM	NO_ALARM		
Digital	INVALID	INVALID		
Phase 2 Cold Box System Fault	NO_ALARM	NO_ALARM		
Phase 2 Compressor OFF	MAJOR	NO_ALARM	STATE	on
Phase 2 Turbine 1 Speed Out of Range	NO_ALARM	NO_ALARM		
Phase 2 Turbine 21 Speed Out of Range	INVALID	NO_ALARM	not connected	0
Rest	INVALID	INVALID		
Pitiful	INVALID	INVALID		
TESTP1	INVALID	NO_ALARM	not connected	0
TESTP2	INVALID	NO_ALARM	not connected	0

Alarm Hierarchy

Unacknowledged (silenced 1 hr)

Event Time	Channel	Severity	Status	Type
2016-05-14 14:07:27	Centre Temperature Out of Range	MAJOR	HIHI	alarm
2016-05-14 14:06:56	Left Temperature Out of Range	MINOR	HIGH	alarm

Unacknowledged

Silence 1 min    Silence 10 min    Silence 1 hour

Acknowledged (3 unconnected not shown)

Event Time	Channel	Severity	Status	Type
2016-05-14 14:06:32	Phase 2 Compressor OFF	MAJOR	STATE	alarm

Acknowledged

PV TEST:AREC7 Alias: Left Temperature Out of Range Event Time: 2016-05-14 14-06-56

Severity: MINOR Ack State: MINOR

Status: HIGH Value at event time: 75

Runtime Configuration

Enable

Silence

Disable

Ack Yes

ACKT Yes

Log Yes

Operator

Show Guidance

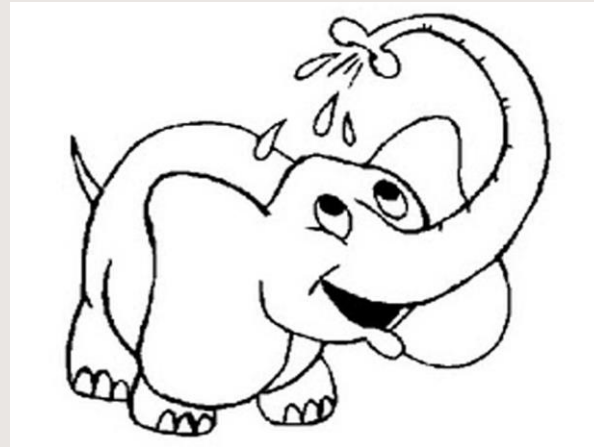
Acknowledge    Execute Command    Cancel

- wishful thinking ?
  - separate into alarm GUI – alarm server
  - log to relational database
  - make fully Alh compatible - if interest.
    - alarm filters
    - force PVs
    - severity PVs



- so far so good
  - used Qt5
  - tested on Debian8, Scientific Linux6, Windows

- but: edm



Control system "eco-system" built around edm functionality. → ???

# Tack!

# Thank you!

# Merci!

TRIUMF: Alberta | British Columbia |  
 Calgary | Carleton | Guelph | Manitoba |  
 McGill | McMaster | Montréal | Northern  
 British Columbia | Queen's | Regina |  
 Saint Mary's | Simon Fraser | Toronto |  
 Victoria | Western | Winnipeg | York

