

LArIAT Weekly Meeting

Data Acquisition Report, the daqSIDE

William Badgett

Fermilab

 *Neutrino Division*

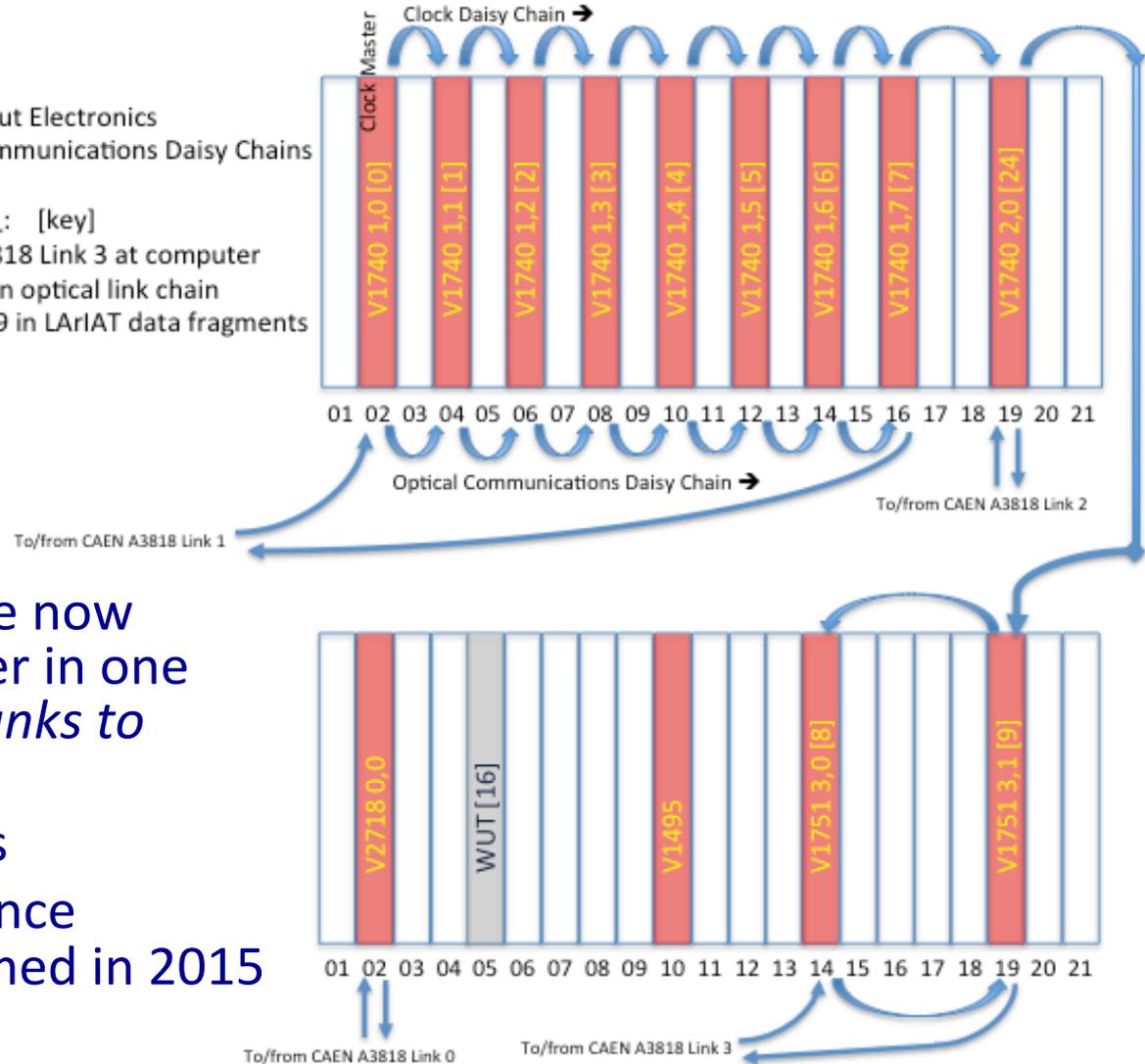
CAEN Digitizer Clocks Synchron



LArIAT Readout Electronics
Clock and Communications Daisy Chains

V1751 3,1 [9]: [key]

- CAEN A3818 Link 3 at computer
- Board 1 on optical link chain
- Board ID 9 in LArIAT data fragments



All CAEN digitizers are now synchronized together in one long daisy chain. *Thanks to Johnny for believing!*

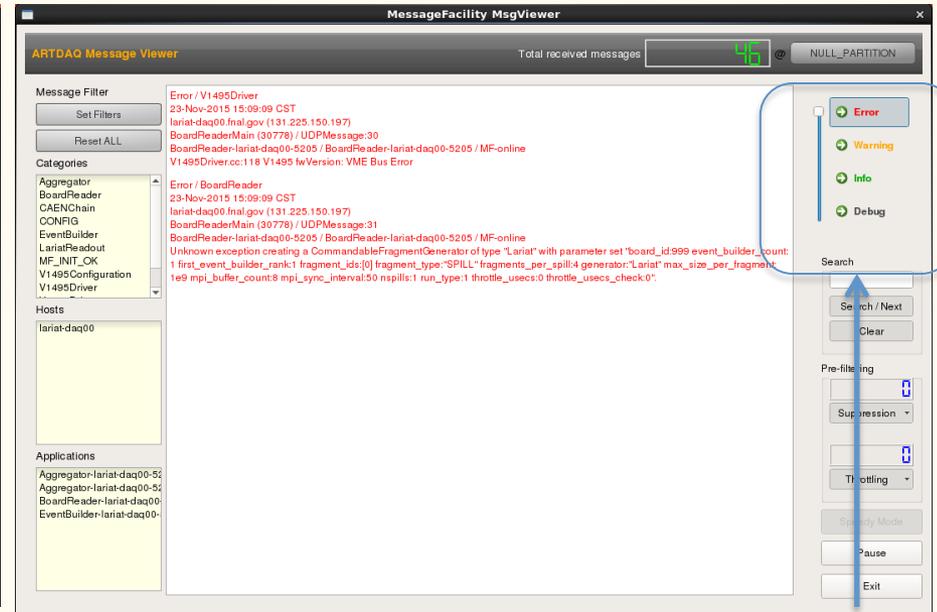
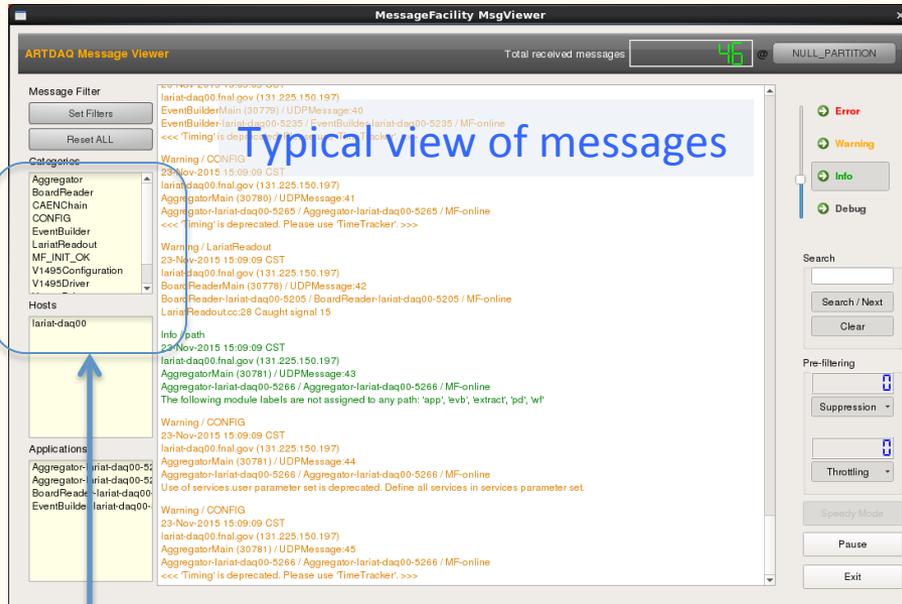
Can sync to $\sim \pm 200$ ps

Found ~ 1.2 ns drift since summer, can be retimed in 2015

Online Computing Status

- Good news: The four DAQ/DQM machines have been replaced by server-class behemoths with dual power, two RAID arrays for data and system, etc.
- Bad news: Not enough power for hot spares, have asked FTBF for outlet
- New primary DAQ machine: lariat-daq00
 - Installed PCIe expander box, no problems in DAQ
- New primary DQM machine: lariat-daq01
- Cold spares: lariat-daq03, daq04
- Gateways the same: lariat-gateway00, 01
- Remember to bounce thru gateways to get to DAQs!

Graphical Message Display



Filter by message source

Filter by message severity to quickly locate error source
This was a V1495 bus error

“You asked for It, you got it, Ramona!”
or
“Careful what you ask for”

Required significant code mods
Using Art / ArtDaq MessageFacility product
GUI pops up when you type “go”
Have asked JCFree to fix non-useful warnings

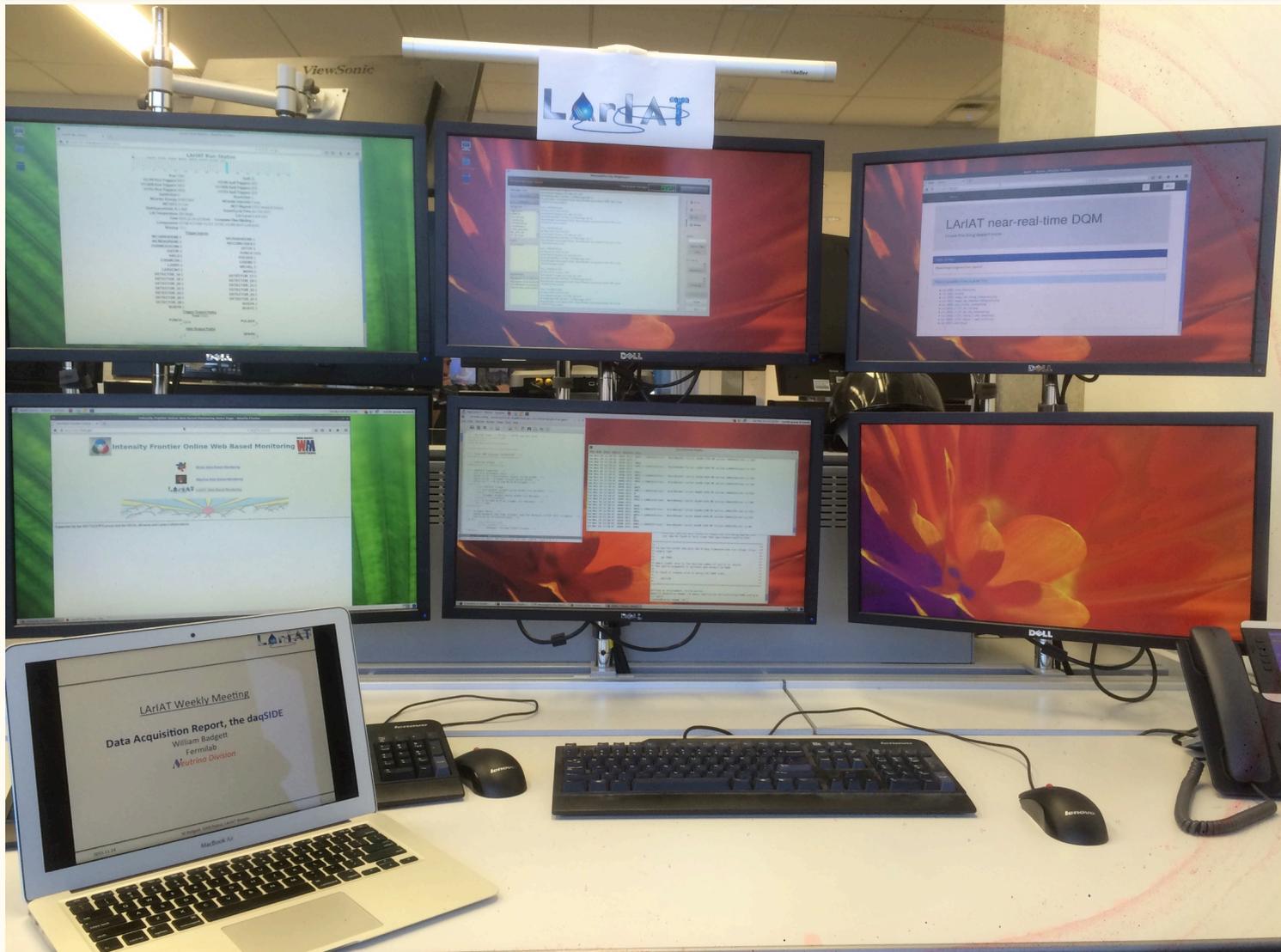
ROC-west Operation

- Have two desktops, one with 4 monitors, other with 2 monitors
- SLAM and ROC-w more restrictive on systems
 - No root access, aww shucks
- Same “three point login” as at FBTF
 - Login as “lariat” but using your own kerberos principal
- I have set up a special principal for access to online systems, running in background renewing ticket
- Now we rsync data from daq00 to daq01
 - DQM using data copy, running OK
 - Use <http://lariat-dqm.fnal.gov> from control room or anywhere
- To take runs, for now (until we find a simpler way):

```
ssh lariat-gateway
ssh lariat-daq00
go
```

NB: The DAQ will **not** start up if someone else is running the system
If you have good ideas about how to run in ROC-west, please chime in

LArIAT @ ROC-west



Spares!

- Order for one CAEN V1740 and one CAEN V1751 passing thru the FNAL purchasing python
 - Should be here by February 2016 run
 - Sleep easier
- Reduces pressure on V1740 number 24
 - Have 96 total extra readout channels
 - Let's map them out!

TPC Noise Testing Hazard Analysis

Cryostat open + HV operation, allowed with conditions:

- Glassman voltage may not exceed 1 kV
- TPC is roped off with danger HV signs and safety tape
- Person stationed in MC7 to prevent any and all access to TPC
- No off-hours nor unattended operation
- Read and sign HA form, copy at docdb 1674

TPC Access without HV operation:

- Glassman **MUST** be locked out with **red** LOTO lock by LOTO 2 trained personnel
- PMT HV must be disconnected at patch panel in MC7

While TPC is not powered nor in access

- Glassman must be locked out with gold configuration lock

Low voltage ASIC power +5V (TPC mother boards)

- Operation allowed unattended and off hours
- Must have safety warning tape around cryostat opening