



VLPC Detectors: Shift Training & Reference Guide

by the CFT, CPS, FPS, and CTT Groups
(Version 2, December 2003)

DØ Experiment

Note: You are invited to make comments and suggestions by writing in this paper version. However, if you do so, please sign & date any comments you write in here, so we can get clarifications if needed. Thanks.



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* See also separate Black Binder on "CFT+PS Monitoring and Examine, located in DØ Control Room: CFT+PS Console area.
** See also J. Warchol's note on "SDAQ Runs, Calibrations, located in Black Binder.



Shift Guide: Outline

- Modes of Operation
- Purpose
- Background
 - ◆ Daq System
 - ◆ **Visible Light Photon Counter (VLPC) detectors**
 - * Central Fiber Tracker (CFT), Central Preshower (CPS), and Forward Preshower (FPS)
- Tools
 - ◆ Daq tools
 - ◆ Examines/histograms
 - ◆ Other tools: Monitoring and Debugging
- Troubleshooting
- Administrative Issues



Modes of Operation

- Global running (Luminosity conditions)
 - ◆ About 5 days a week
 - ◆ Primary tools used are: Examines, cft_gui, and e-logbook.
- Supporting experts during beam studies
 - ◆ Remaining 2 days and random breaks.
 - ◆ Assist in taking 'cft' or 'ps' only runs at expert's request.
 - ◆ Use all the tools.
 - ◆ More complicated and chaotic.
- Shifts:
 - ◆ Owl: 12:00 am - 8:00 am
 - ◆ Day: 8:00 am - 4:00 pm
 - ◆ Eve: 4:00 pm - 12:00 am
- * Owl shift is 1st shift of the day
- * See 'Online Shift Calander' at 'www-d0.fnal.gov/atwork/' for your assignment
- * Shifter required to arrive on shift about 5-10 minutes prior to start of shift to discuss current system status with previous shifter

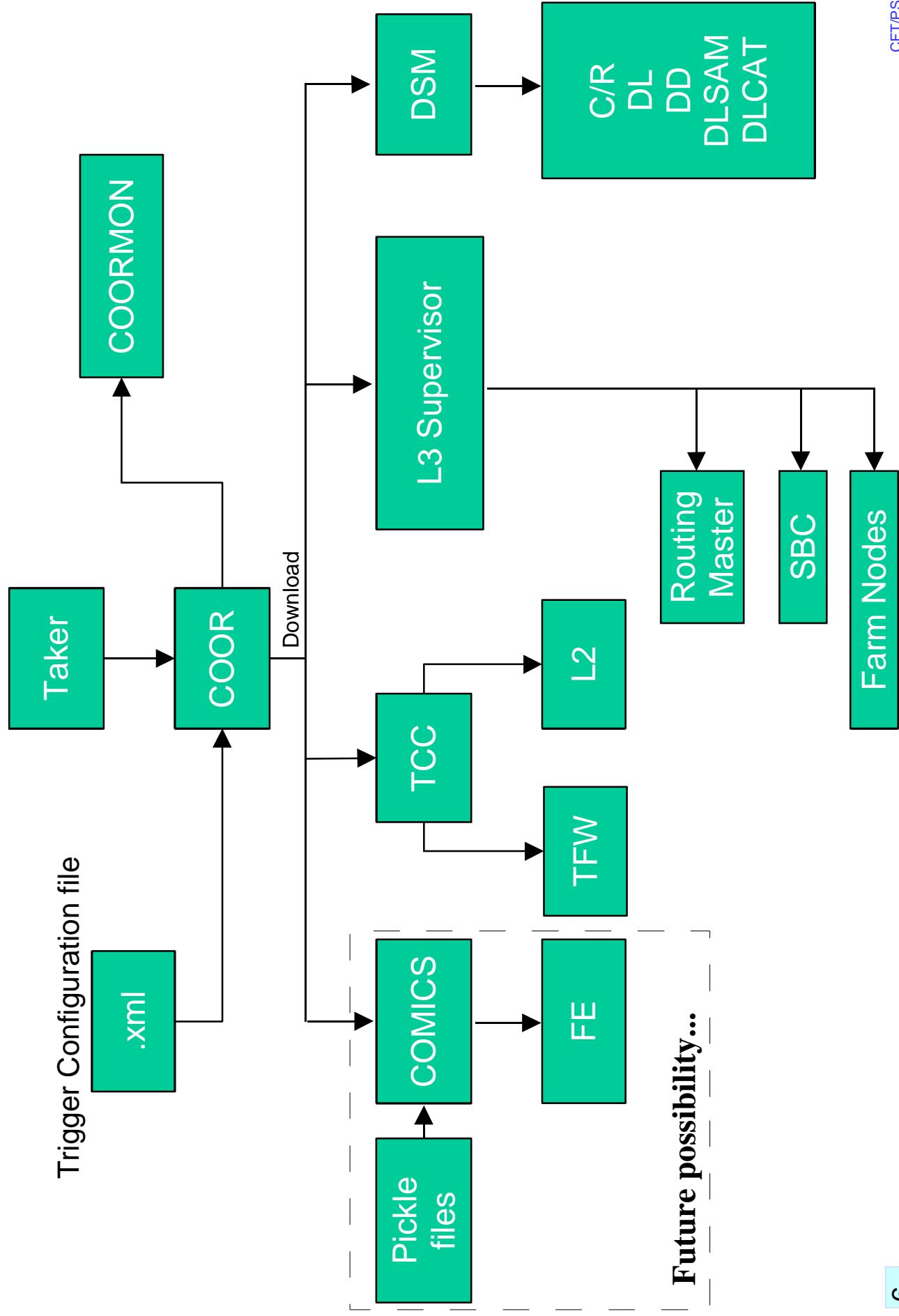


Purpose of shifts

- Monitor detector readout and response
 - ♦ Cryo/Temp
 - ♦ Bias
 - ♦ Insure data quality
- Minimize down time
 - ♦ Fix most problems
 - ♦ Call experts when necessary
- Assist experts in taking calibration runs, performing maintenance
- Understand the detector and optimize its performance
- Feedback on tools needed for shifts
- Accomplish stated shift goals

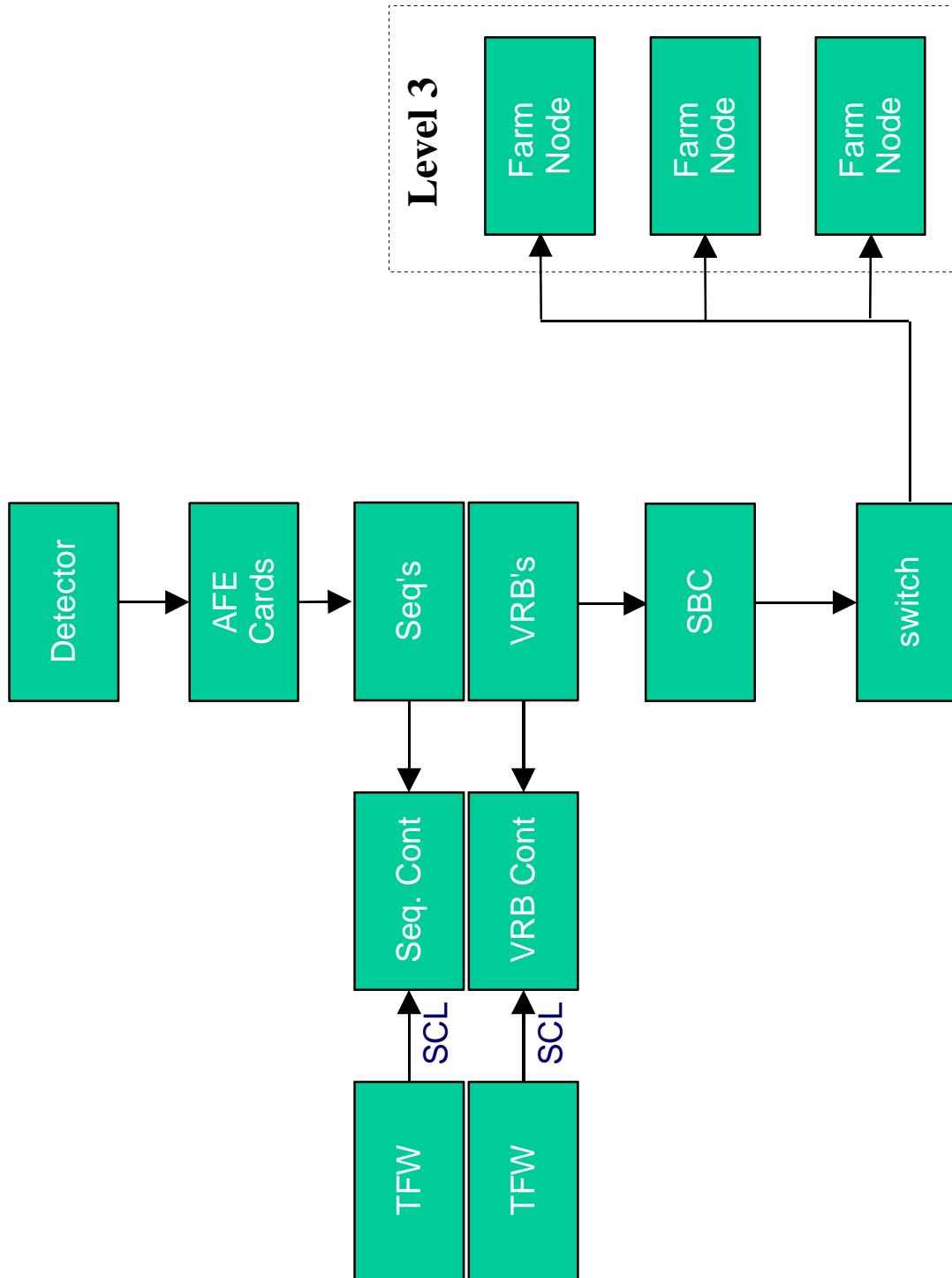


DAQ Run Control Diagram

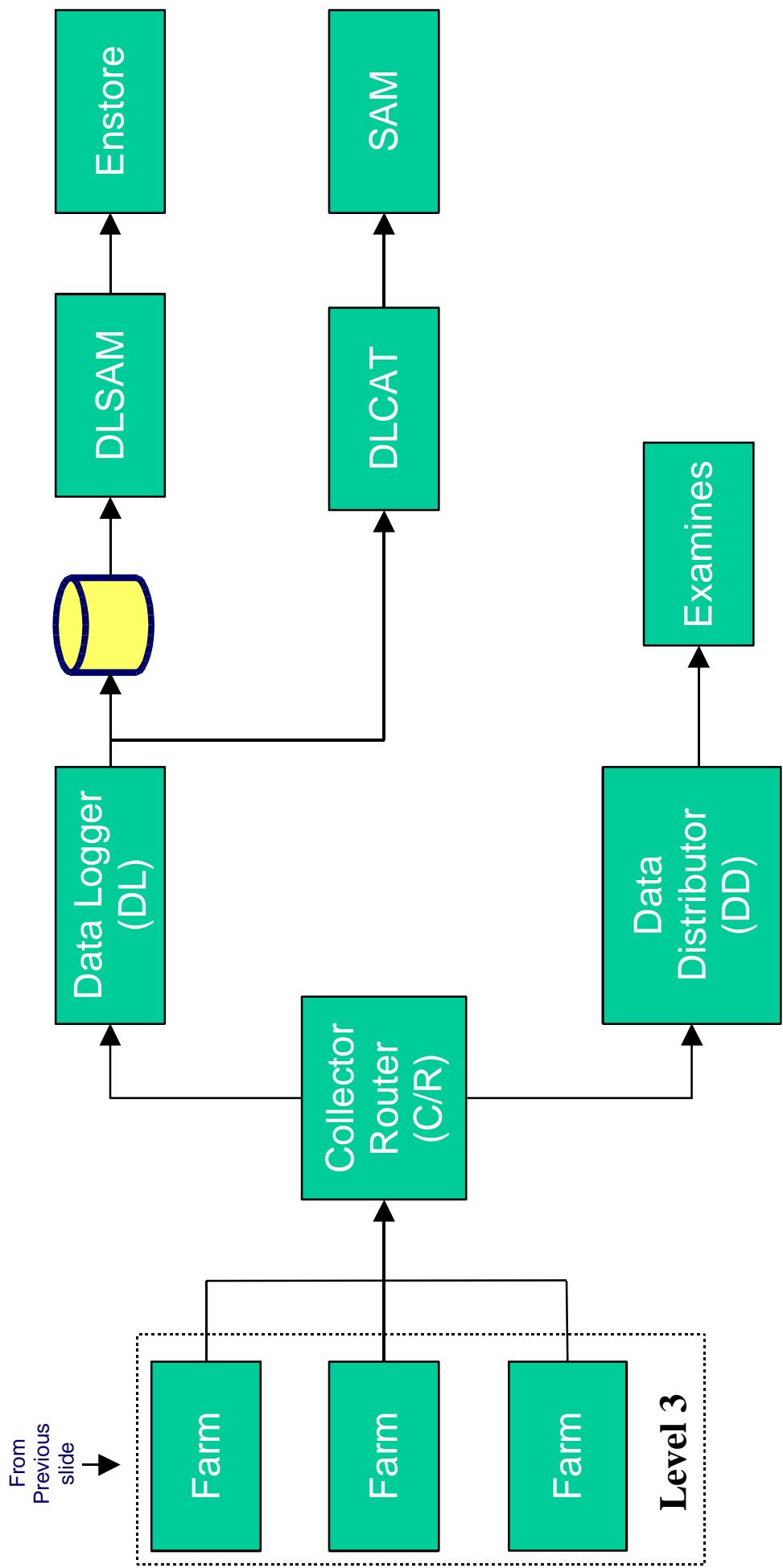




Primary DAQ Data Flow



Primary DAQ Data Flow (Con't.)

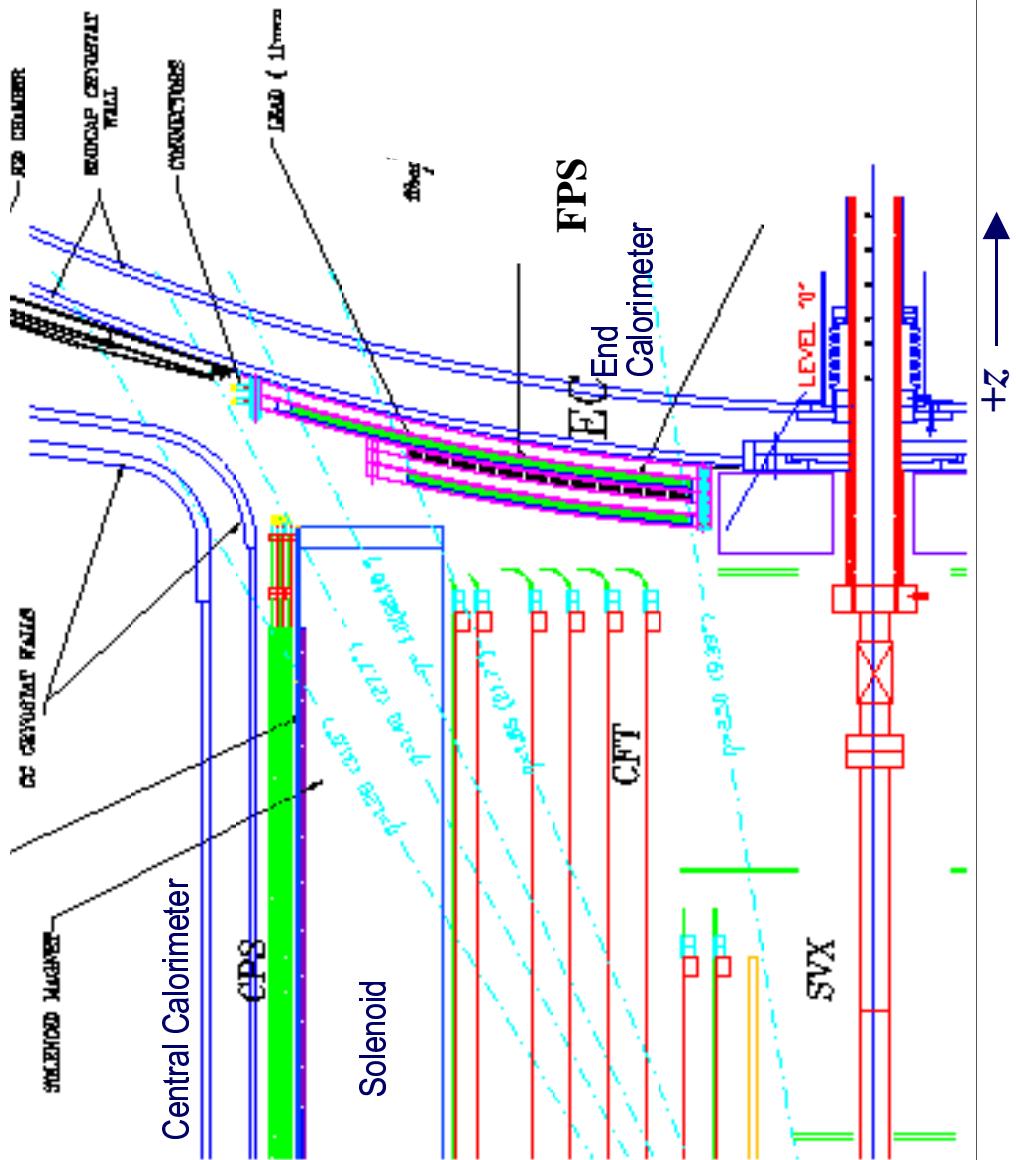




Central and Forward Region

CFT+PS:

~100,000 Channels
(VLPC system)

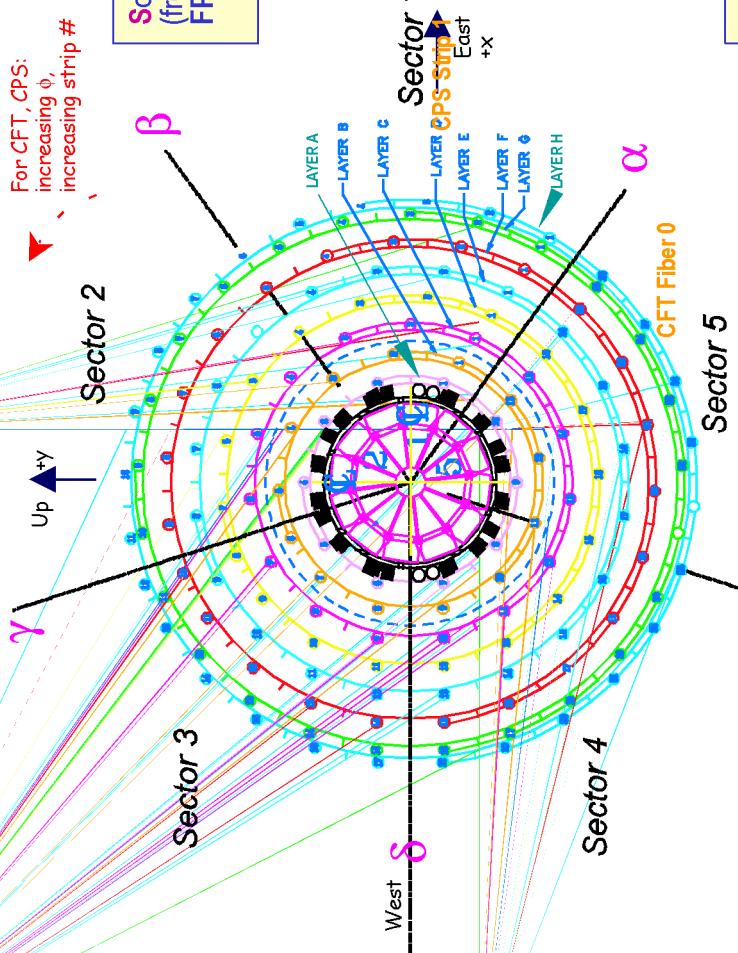


- CFT:
 - 8 Axial Layers (z)
 - 8 Stereo Layers (u, v)

- CPS
 - 1 Axial Layer (z)
 - 2 Stereo Layers (u, v)

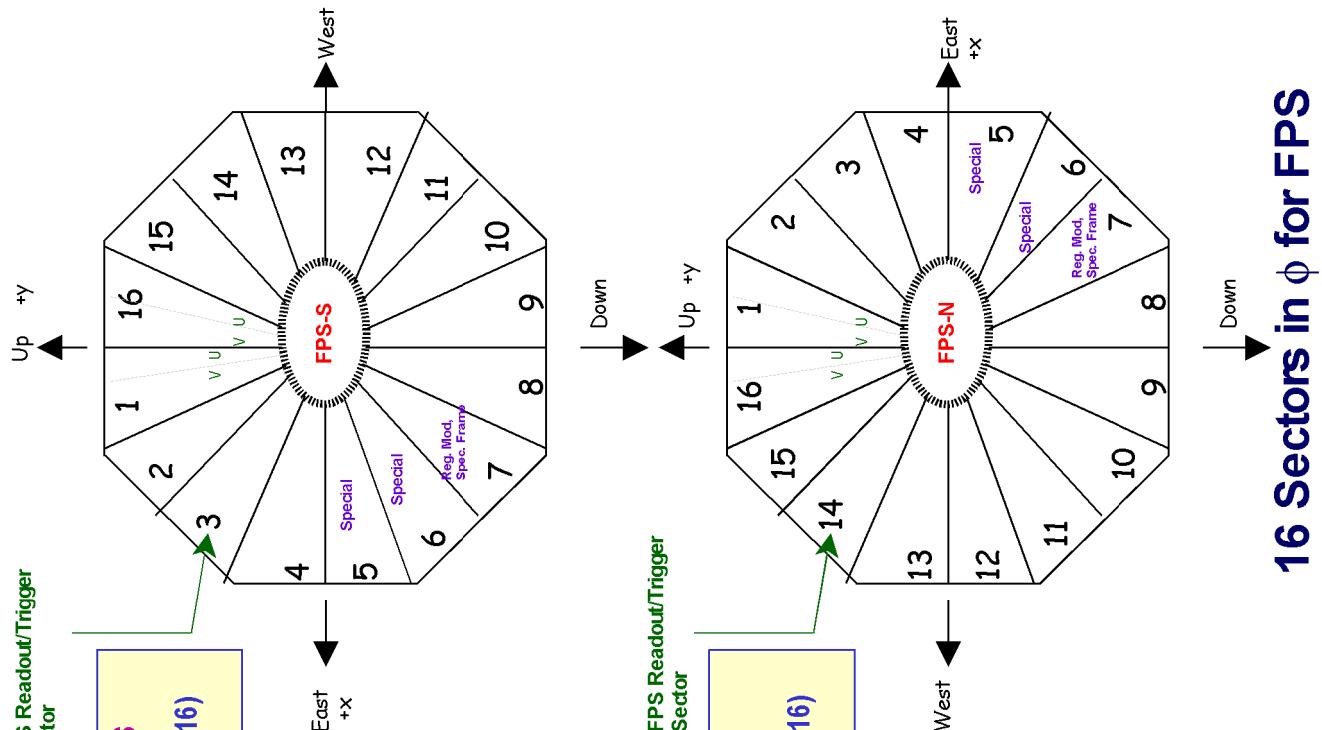
- FPS
 - 2 MIP Layers (u, v)
 - 2 Shower Layers (u, v)

CFT, CPS, FPS: Sectors



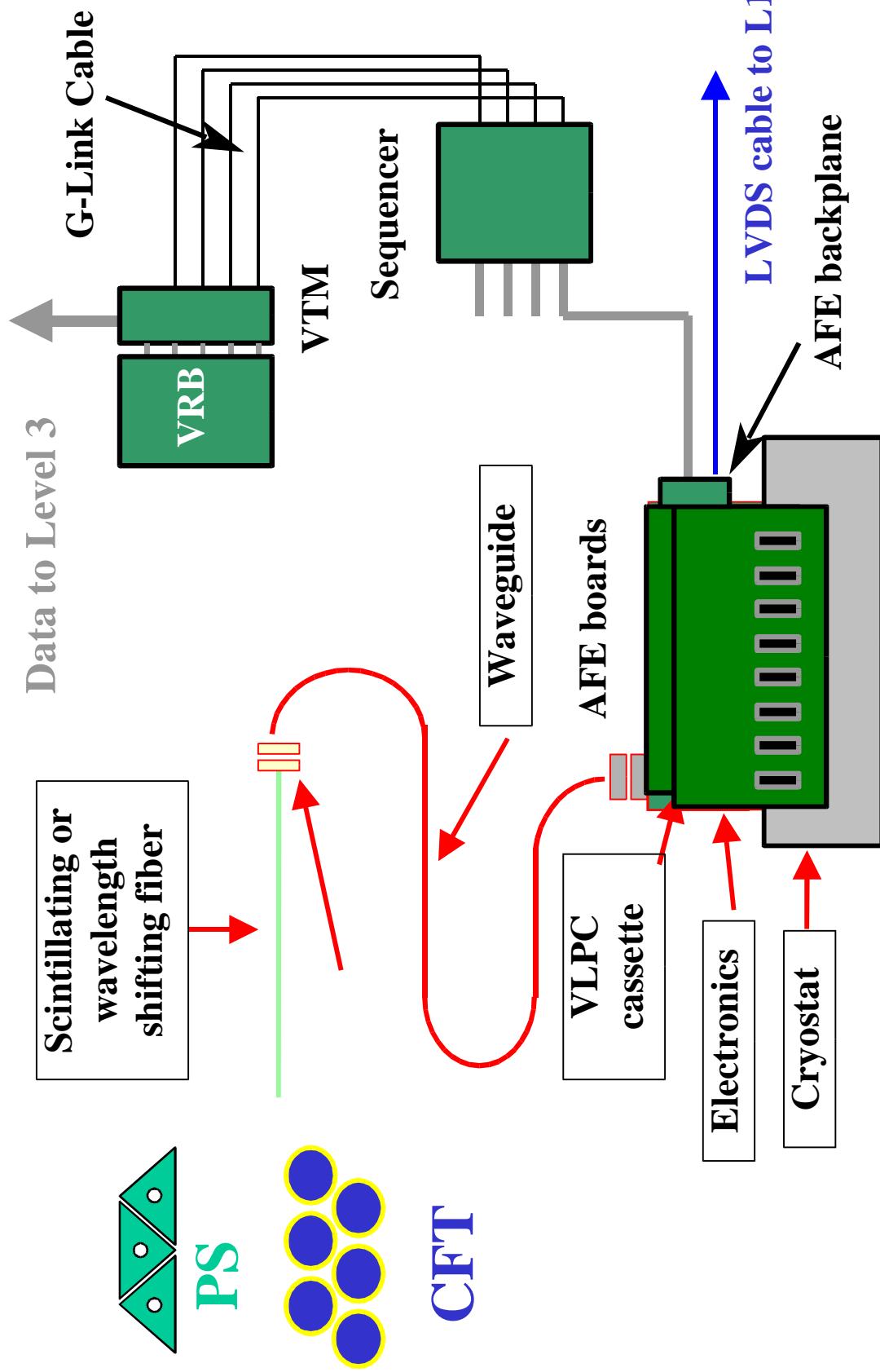
5 Sectors in ϕ for CFT, CPS

CFT Axial	α	β	γ	δ	ϵ	$\alpha - 1$	End Fiber	CFT Fiber Number or CPS Strip Number
A	0	512	1024	1536	2048	2559		
B	0	640	1280	1920	2560	3199		
C	0	768	1536	2304	3072	3839		
D	0	896	1792	2688	3584	4479		
E	0	1024	2048	3072	4096	5119		
F	0	1152	2304	3456	4608	5759		
G	0	1280	2560	3840	5120	6399		
H	0	1408	2816	4224	5632	7039		
	CPS Layer 1,2,3	1152 (-128)	128	384	640	896	1151	





PS and CFTT readout

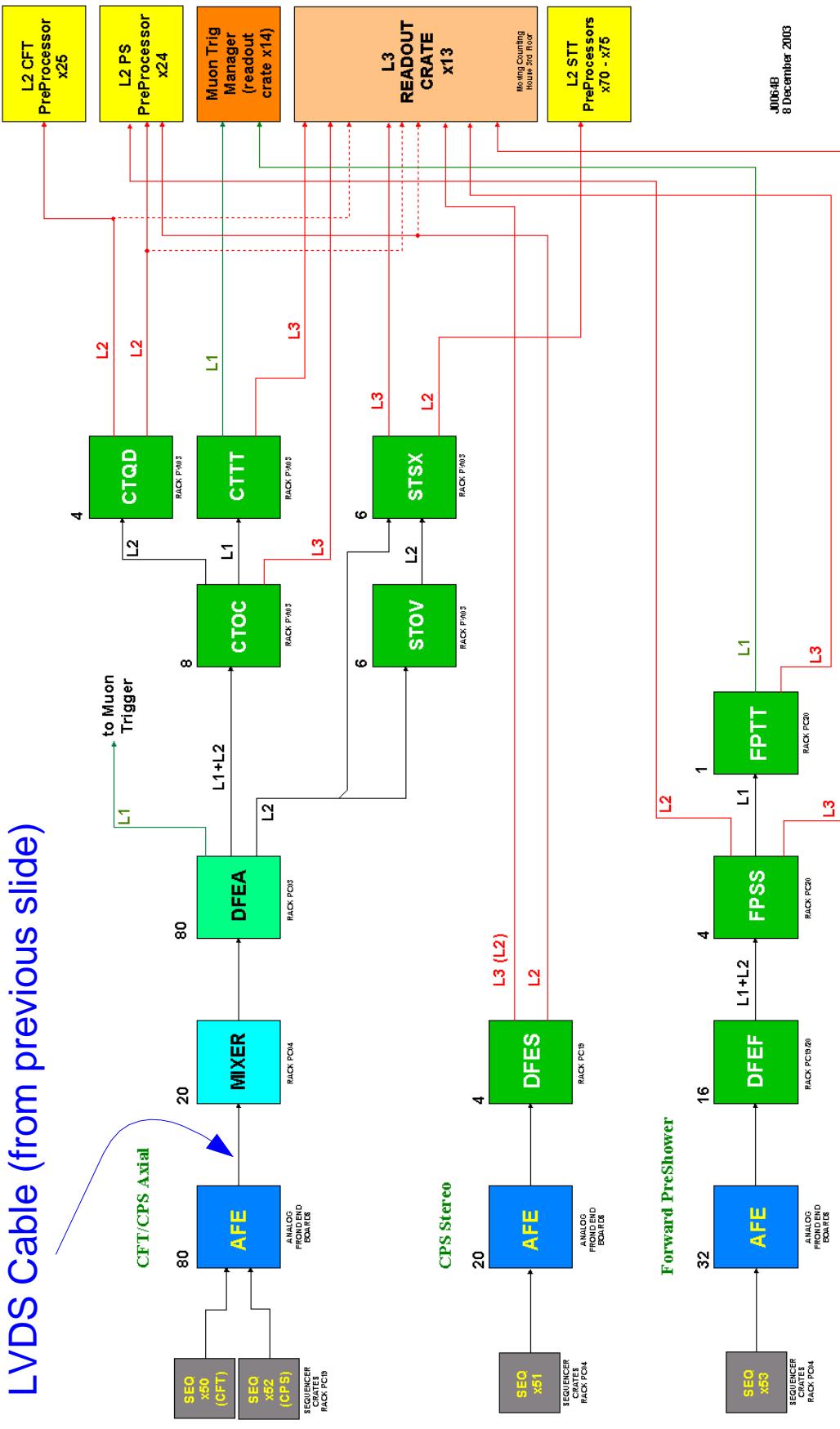


A mock setup is available in DAB3's visitor area. Look on your own or ask an expert for a tour!



Central Tracking Trigger

LVDS Cable (from previous slide)



The CTT reads discriminator data directly from the AFE boards and processes it in multiple stages. The CTT chain directly feeds crates x13, 14, 24, 25, and provides inputs to the STT system (crates x70-75). Many crates are effected when a CFT crate (on the left) is pulled out of the run!

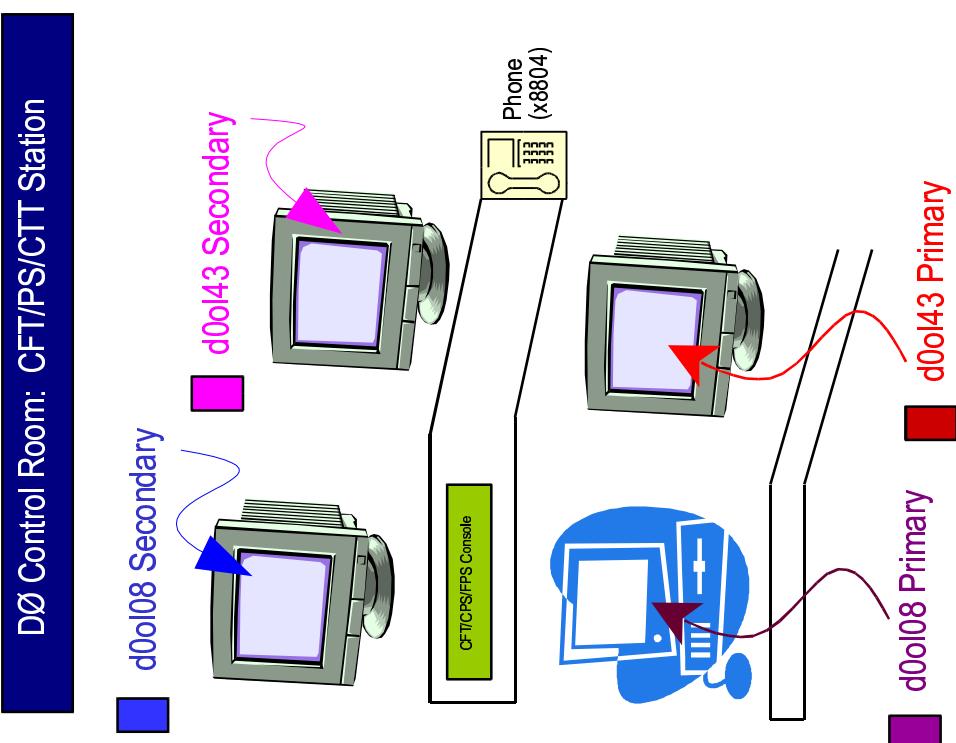


Shifter's Primary Tools (Summary)

- DAQ tools
 - ◆ Taker
 - * SDAQ (Calibration, Pedestal Runs)
 - ◆ Daq monitor
 - ◆ l3x_qt_display + DAQ_Dialog
 - ◆ Coormon
 - ◆ Electronic Logbook (e-log)
 - Online Monitoring Software: Examines
 - ◆ Histogram Browser based
 - * CFT Examine
 - * CPS Examine
 - * FPS Examine
 - * PDAQ Examine
 - ◆ CTT Examine (ROOT based)
 - CFT+PS specific
 - ◆ cft_gui
 - ◆ Other Monitoring Software (e.g., AFE Monitor)
 - ◆ FEB_Util
 - ◆ Channel Archiver



Basics: Cold Start



- If a reboot or power outage occurred: Log-on and start the CFT/PS/CTT consoles...
- To do so, from either machine, type at login screen:
 - ♦ Username: d0cft <enter>
 - ♦ Password: ***
- One-by-one start-up each tool and/or gui in the appropriate window shown on the next slides.
- Please follow the conventions shown on the next slides.



Basics: CFT/PS Console (d0o108)

- Keep console organized
- Uniform from shifter-to-shifter: avoid confusion
- Run programs on the proper machines!



d0o108 Secondary



d0o108 Secondary

Changing Machines:
➤ setup d0online
➤ d0ssh d0o1**



d0o108 Primary

<i>d0o108 Secondary</i>			
1 AFE Monitor	2 COORMon	3 Umon	
IOC Monitor			
4 DAQ Monitor	5	6	

d0o108 Primary

<i>d0o108 Primary</i>			
1 CFT Examine d0o124	2 CPS Examine d0o124	3 FPS Examine d0o124	7 CFT SDAQ d0o124
			8 CFT GUI Crate x50
4 Vertex Examine d0o127	5 PDAQ Examine d0o135	6 Archiver d0o137	9 Crate x53
			10 IOC xterms Taker
			11 Crate x51
			12 Crate x52
			13 VNC Viewer (LED Pulser)
			14 FEB Utility Crate x50
			15 Crate x53
			16 E-Logbook
			17 Crate x51
			18 Crate x52

Note: To conserve memory consumption, common practice to not open cft_gui's [details] for each crate during global running. Can open if necessary (e.g., download failures, etc.)

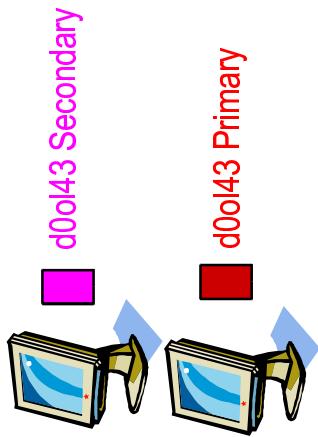


Basics: CTT Console (d0oI43)

- Keep console organized
- Uniform from shifter-to-shifter: avoid confusion

d0oI43 Secondary

1 CFT Alarm Display	2	3 Umon	
Platform RMI			
L3XQT			



d0oI43 Primary

1 DAQ Monitor	2 CTT Examine	3 Event Dump	4	5 DFE Ware	6 Mu MTM Cntrl	13	14	15
7 AO Term	8	9 Mozilla (CFT/CTT webpages)	10 L1cttLoad.py IOC (x13)	11 DFE Ware macros	12 Mu MRC	16	17	18



Web Resources

d0server1.fnal.gov/users/warchol/Updates.htm
www-d0online.fnal.gov/www/groups/cft/CTT/online/ChkListTrouble.html

The screenshot shows a web browser window with the following content:

- Title Bar:** File Edit View Go Bookmarks Tools Window Help
- Address Bar:** http://www-d0online.fnal.gov/www/groups/cft/CTT/online/ChkListTrouble.html
- Content Area:**
 - CTT Checklists' Companion** (highlighted in yellow)
 - **Contact List**
 - **CTT Checklists' Companion**
 - **Troubleshooting Current Alarms**
 - 1. Catch-all, DCF1, DCF2, DCF3
 - 2. FEB
 - 3. DAQ and Trigger
 - 4. Examines
 - 5. Global Economic
 - 6. IOC Resource Monitor
 - 7. Warning of Chassis
 - 8. Warning of Cooling Out
 - 9. Warning of Cooling In
 - 10. Warning of Power
 - 11. Warning of System
 - 12. Temperature Control
 - 13. Fast Glasses
 - 14. AFE
 - **Troubleshooting Recent Alarms**
 - 1. Catch-all, DCF1, DCF2, DCF3
 - 2. FEB
 - 3. DAQ and Trigger
 - 4. Examines
 - 5. Global Economic
 - 6. IOC Resource Monitor
 - 7. Warning of Chassis
 - 8. Warning of Cooling Out
 - 9. Warning of Cooling In
 - 10. Warning of Power
 - 11. Warning of System
 - 12. Temperature Control
 - 13. Fast Glasses
 - 14. AFE
 - **Contact List**
 - **CTT Checklists' Companion**
 - **Troubleshooting Current Alarms**
 - **Troubleshooting Recent Alarms**
- Bottom Status Bar:** Document Done (1.372 sec)

Online webpages are available with up-to-date information on both the CFT and the CTT. A routine part of beginning you shift should be viewing these webpages, looking for the recent updates. (You may need to press 'Refresh' on an open browser to see recent additions.)

The screenshot shows a web browser window with the following content:

- Title Bar:** File Edit View Go Bookmarks Tools Window Help
- Address Bar:** http://www-d0online.fnal.gov/www/groups/cft/CTT/online/Instructions
- Content Area:**
 - CTT Instructions for the CFT Shifter**
 - **CTT Tutorial:**
 - CFT Introduction (PDF)
 - CTFEware (Gif, PPT, HTML)
 - CFT Examine (PS)
 - **NEWS:**
 - CFT Introduction (PS)
 - CTFEware (Gif, PPT, HTML)
 - CFT Examine (PS)
 - **General Instructions:**
 - CFT Checklist Instructions
 - Reference Plans
 - **Troubleshooting:**
 - CFT trigger rates setup
 - Start MRC GUI
 - CFT Board test
 - Diagnostic
 - Create 12 Problems
 - Create 14 Problems
 - Create 15 Monitoring Events
 - Create 15 Monitoring Events but not FEB
 - Missing sectors in examine
 - SITI Problems
 - SITI trigger rates acutup
 - Start MRC GUI
 - CFT board lost programming
 - Rate x13 Problems
 - Create x13 missing events but not FEB
 - Create x13 missing events
 - Missing sectors in examine
 - SITI Problems
 - SITI trigger rates acutup
 - Create x14 Problems
 - Create x14 Problems
 - Sync problems
 - MTC Low Voltage Power supply trip
 - DFE/ACTO/CFTT pipeline depth wrong
 - How to start the cft examine
 - SSH Problems
 - CFT experts contact
- Bottom Status Bar:** Document Done (1.372 sec)

The CTT page has a lot of information about recent CTT problems and their solutions. It is an excellent resource for CTT troubleshooting and includes the phone list for all CTT Experts.

NEWS

last modified 2003-08-28 HV new A/O terms mapping
 modified 2003-08-25 for meeting memo TEI ref nln updated flow.com

The screenshot shows a web browser window with the following content:

- Title Bar:** File Edit View Go Bookmarks Tools Window Help
- Address Bar:** http://www-d0online.fnal.gov/www/groups/cft/CTT/online/ctt_main.html
- Content Area:**
 - CTT Instructions for the CFT Shifter**
 - **CTT Tutorial:**
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 - Create x14 Problems
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 - SSH Problems
 - CFT experts contact
- Bottom Status Bar:** Document Done (1.372 sec)



Electronic Logbook



CFT

The Logbook and You?

Automated forms
help streamline the shift, from beginning to end.

Use the forms frequently, following them in detail will help ensure a smooth shift and quality data.

LOG EVERYTHING, and paste images: You are our eyes!

The missing region in cftx1 maps to AFE board 7A5, the new board installed today.
These are attributed to calibration problems.

When starting up, choose the 'CFT' tab, then open a log form with the 'CFT' item on the menu. Drag the 'Text' box, or any automated form icon, from the right side into the log window in order to create a new entry.



E-Log Checklists

The screenshot shows the E-Log software interface with the 'Checklist' tab selected. The main window displays a checklist for 'VME Crates Status' dated December 10, 2003. The checklist lists three VME crates (crates 051, 052, and 053) as 'none VRB busy'. Below the checklist, there are several standard solutions for VME crates being busy:

- VRB crate:
 - Ask DAQ shifter to pause the run
 - Ask DAQ shifter if SBC needs reset
 - SBC will be reset by DAQ shifter, if needed: _____
 - SC Limit will be issued by DAQ shifter, if crate FEB: _____
 - Ask DAO shifter to resume run
 - Ask DAO shifter to pause the run if needed
 - reinit VME for the crate
 - Ask DAO shifter to resume run
 - Ask DAO shifter to pause the run if needed
 - reinit VME for the crate
- FEW VRBs BUSY IN A CRATE STANDARD SOLUTION:
 - VRB crate:
 - Ask DAQ shifter to pause the run
 - reinit VME for the crate
 - Ask DAO shifter to resume run
 - Download rate or crates if needed
 - After AFE crate x50 or x52 download, issue 'fix CTT'
 - After AFE crate x50 or x52 download, enter CTT checklist into eLog
 - MISSING EVENTS ERRORS STANDARD SOLUTION:
 - init VRBC for the crate (no need to pause run)

Keep track of physics run numbers during your shift for the shift summary form at the end.

The trouble button will solve many problems during your shift. **LOG EVERY PROBLEM THAT OCCURS**, along with it's solution, even if you skip using the trouble button on frequent problems. This information will not only help the experts, but will help the shifters that follow you to deal with future issues.

Important Checklists:

- Begin Shift** - Fill this out at the beginning of each shift
- Between Stores** - Every four hours during zero bias running
- Shot Setup** - Fill this out during shot setup (set examine streams & more)
- Begin Physics Run** - Fill out once at the beginning of each physics run
- Data Taking** - Every two hours during a physics run
- Shift Summary** - At the end of your shift, this info gets emailed to a large list
- TROUBLE** - This button walks you through common solutions to problems



Capturing Images

- Useful to capture images of certain histograms, gui conditions, FEB_Util status, temp/cryo and bias plots, etc...
 - ◆ This will help in maintain history of system.
 - ◆ Allow experts to debug/understand system better.
- ◆ To do so, simply type:
 - * [d0cft@d0o108~] import filename.jpg
- ◆ Mouse pointer temporarily turns into cross-hairs; left-click on the window you wish to capture image of
- ◆ Wait ~1-2 seconds, cross-hairs turns back to pointer.
- ◆ Note: filename.jpg has been created. You can check this by typing:
 - * [d0cft@d0o108~] xv filename.jpg (this opens an Image Browser)
- ◆ You can also capture portion of the window/image:
 - * Again at the prompt, type: import filename.jpg
 - * Mouse pointer turns into Cross-hairs → left-click on one corner of the image you wish to capture, and while holding left-mouse button down, drag the mouse to opposite corner → release mouse button.
 - * Again, filename.jpg has been created.



Coormon



To launch coormon, from x-term, type:

setup d0online
start_daq coormon

Allows shifter* to do an SCL init by clicking:

Control → SCL_init

*Note: in global physics run, CFT+PS shifter tells DAQ shifter to issue the SCL init

Also allows shifters to monitor run status:

- ✓ Trigger
- ✓ Store #
- ✓ Run #
- ✓ No. of Events processed
- ✓ Crates in run etc...
- ✓ as well as status of readout crates



cft_gui



To start cft_gui, from xterm type:

	debug: off	global parameter	update EPICS	feb util	closeLogFile	quit
L1 CTT_VRBCR_13						
VRBCR_50	download	reinit VME	init VRBC	off TmpCtl	plot ThreshVrefThres	init VRBC
VRBCR_51	download	reinit VME	init VRBC	off TmpCtl	plot ThreshVrefThres	plot bias
VRBCR_52	download	reinit VME	init VRBC	off TmpCtl	plot ThreshVrefThres	plot bias
VRBCR_53	download	reinit VME	init VRBC	off TmpCtl	plot ThreshVrefThres	plot bias
VRBCR_AFE_TEST	download	reinit VME	init VRBC	off TmpCtl	plot ThreshVrefThres	plot bias

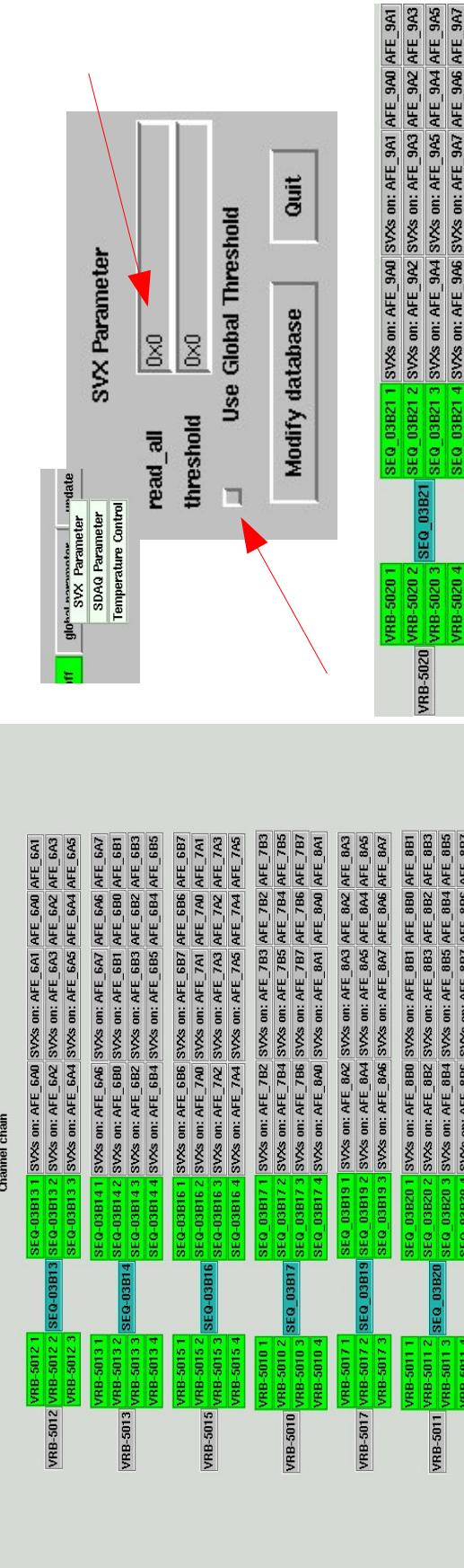
Note Global parameters;
Check before all downloads

[details]
gives:

	download	reinit VME	init VRBC	off TmpCtl	plot ThreshVrefThres	plot cryo	plot bias	details
VRBCR_50	SEQ_03B12	VRBCR_50	VRBCR_50	VBD_50	SEQQC_03B01			

To start cft_gui, from xterm type:
setup d0online
setup onl_cftcalib
cft_gui
Choose 'global parameter' -> 'SVX Parameter' and
check the settings before all downloads during a
physics run.

Make sure that:
read_all = 0x0
'Use Global Threshold' is deselected





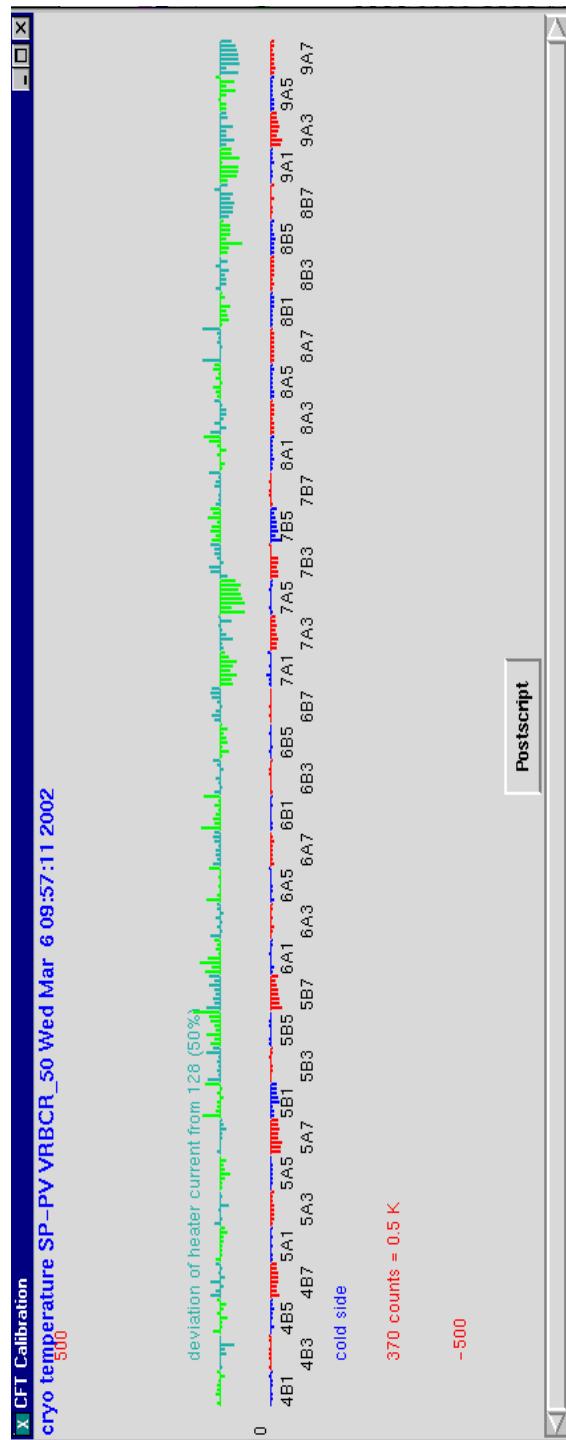
Temp Monitoring

cft_gui



[plot cryo] gives:

(note: the behavior
should look similar
to this!)

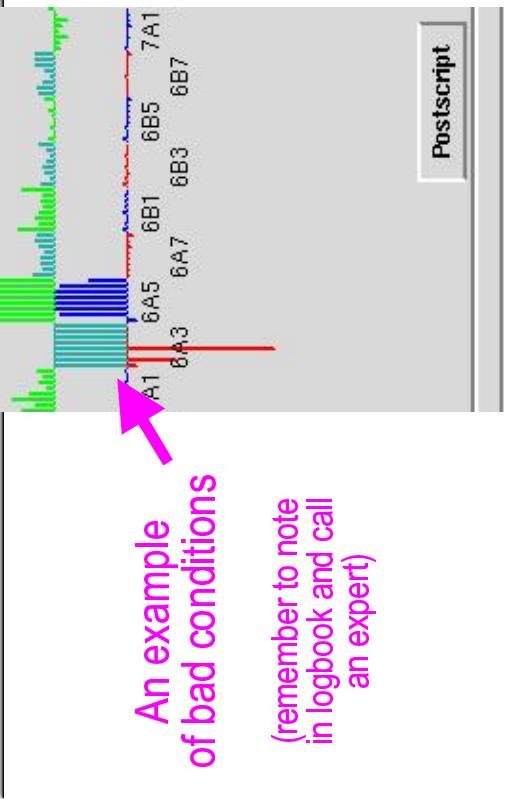


Note: Temperature control is turned off by clicking: [off TempCtl] in cft_gui.

Normally temperature control should be ON, and it is turned on during a download.

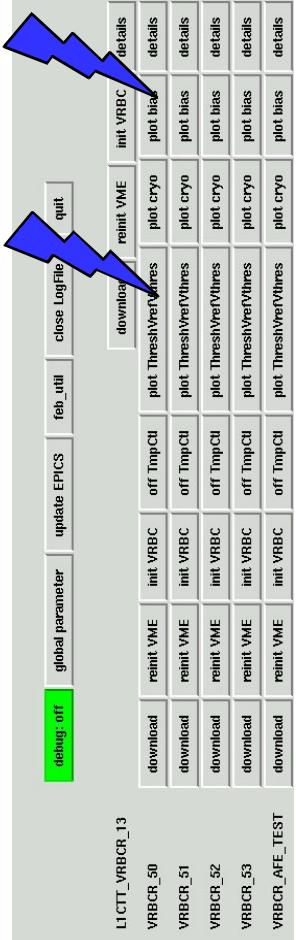


Understanding the display...



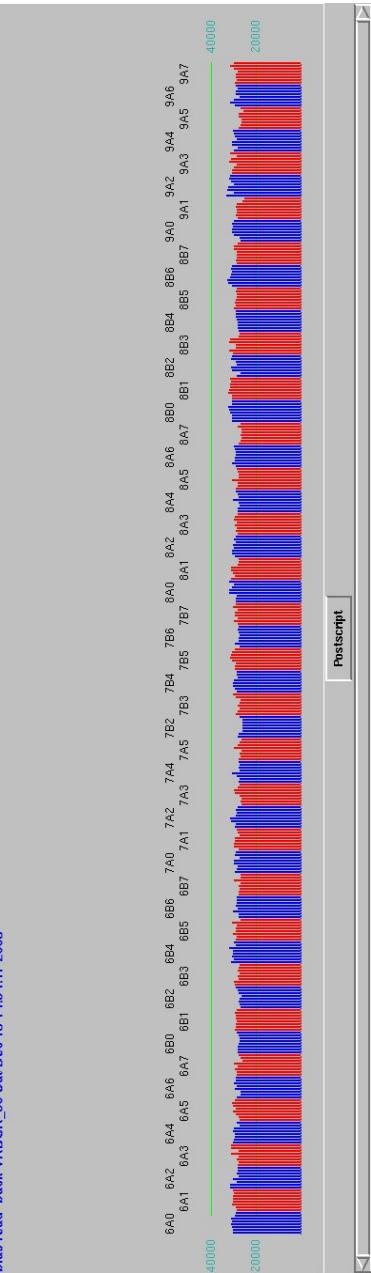


cft_gui: Bias, Vref, and Vthres



Bias readback:

bias read-back VRBCR_50 Sat Dec 13 14:54:17 2003



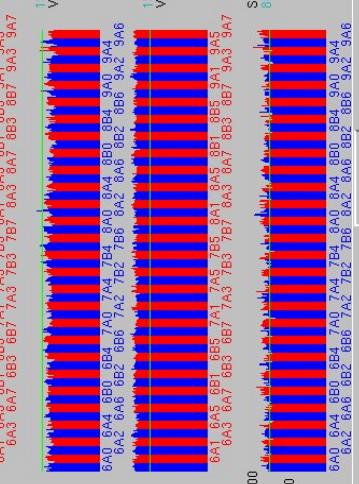
The AFE bias, Vref and Vthres values should be checked at least once at the beginning of your shift, along with the cryo readout. The latest calibration's cryo, bias, Vref and Vthres values are listed on the [CFT Updates' webpage](#).

The bias should read back between the two lines (at 20 and 40K).

The eight lines for each AFE board should not all read the same value under normal conditions.

Vref, Vthres readback:

database constants VRBCR_50 Sat Dec 13 14:55:02 2003



These plots should be compared to the latest calibration's files.

It is important to check for updates to these images online. If you see deviations from what is expected, log an image of the offending crate's values. If everything looks normal, no images need to be logged.



Monitoring Software: AFE Monitor

From x-term window, type:

```
> setup d0online  
> start_daq afe_monitor
```

...wait a few seconds, AFE monitor will start up;

Note: xterm window will say: Starting AFE Monitor Version 4.1

The screenshot shows a software application window titled "AFE Monitor". The menu bar includes "File", "View", "Update", "PIC Temperature", "Temperature SP-PV", "Heater Current", and "AFE Heartbeat". The main area is a table with the following columns: LV Power Supply, PIC Temperature, Temperature SP-PV, Heater Current, and AFE Heartbeat. The rows represent different power supplies, each with a "DETAILS" button. The table data is as follows:

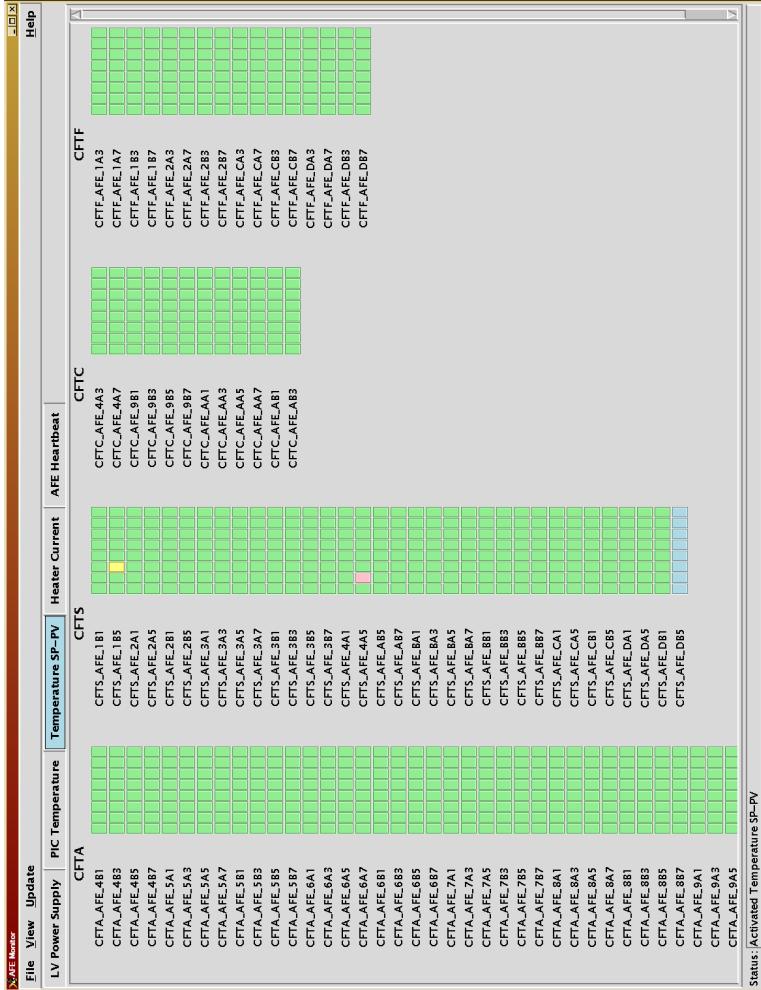
LV Power Supply	PIC Temperature	Temperature SP-PV	Heater Current	AFE Heartbeat
/STAT	-A/+12V	-A/+33V	-A/+55V	-A/+5V
CFT_LVAFE_PS1 DETAILS	12.08	3.70	5.95	5.20
CFT_LVAFE_PS2 DETAILS	12.20	3.83	6.04	5.28
CFT_LVAFE_PS3 DETAILS	12.15	3.81	6.04	5.24
CFT_LVAFE_PS4 DETAILS	12.09	3.77	6.04	5.23
CFT_LVAFE_PS5 DETAILS	12.17	3.85	6.08	5.39
CFT_LVAFE_PS6 DETAILS	11.92	3.79	6.00	5.25
CFT_LVAFE_PS7 DETAILS	12.06	3.74	6.00	5.18
CFT_LVAFE_PS8 DETAILS	12.15	3.79	6.08	5.29
CFT_LVAFE_PS9 DETAILS	12.08	3.79	5.97	5.30
CFT_LVAFE_PSA DETAILS	12.15	3.85	6.08	5.27
CFT_LVAFE_PSB DETAILS	12.08	3.78	6.05	5.22
CFT_LVAFE_PSC DETAILS	11.82	3.75	6.05	5.23
CFT_LVAFE_PSD DETAILS	12.06	3.74	6.04	5.21

Update Now



Monitoring Software: AFE Monitor (cont.)

- To monitor Cryo Temp (set_point-PV) and Heater Current status, click on appropriate AFE Monitor Buttons: [Temperature SP-PV] and [Heater Current] respectively.
- One can correlate their status with the [plot cryo] button on cft_gui (see next slide).
- Don't forget to appropriately update status by clicking on [update] on the AFE_Monitor gui.



[Temperature SP-PV] Window

= Stable

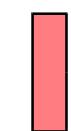


= minor concern

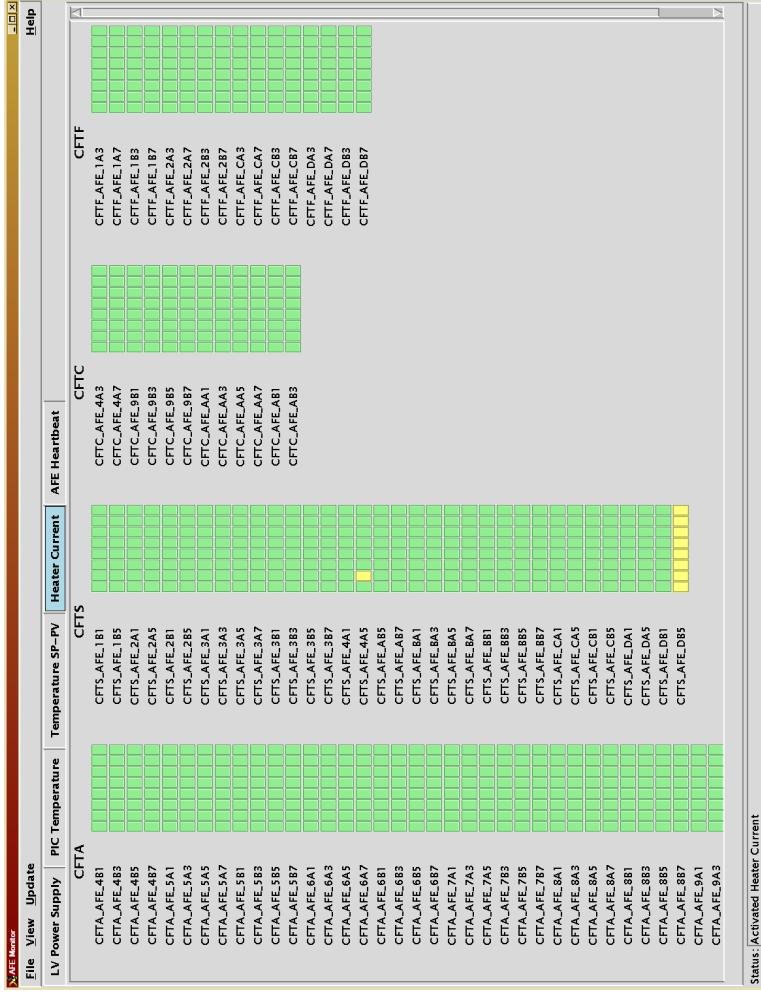


[Heater Current] Window

= major concern



(if this is not known (see also sticky notes or AFE status) or does not go away after 5 minutes, then contact expert).





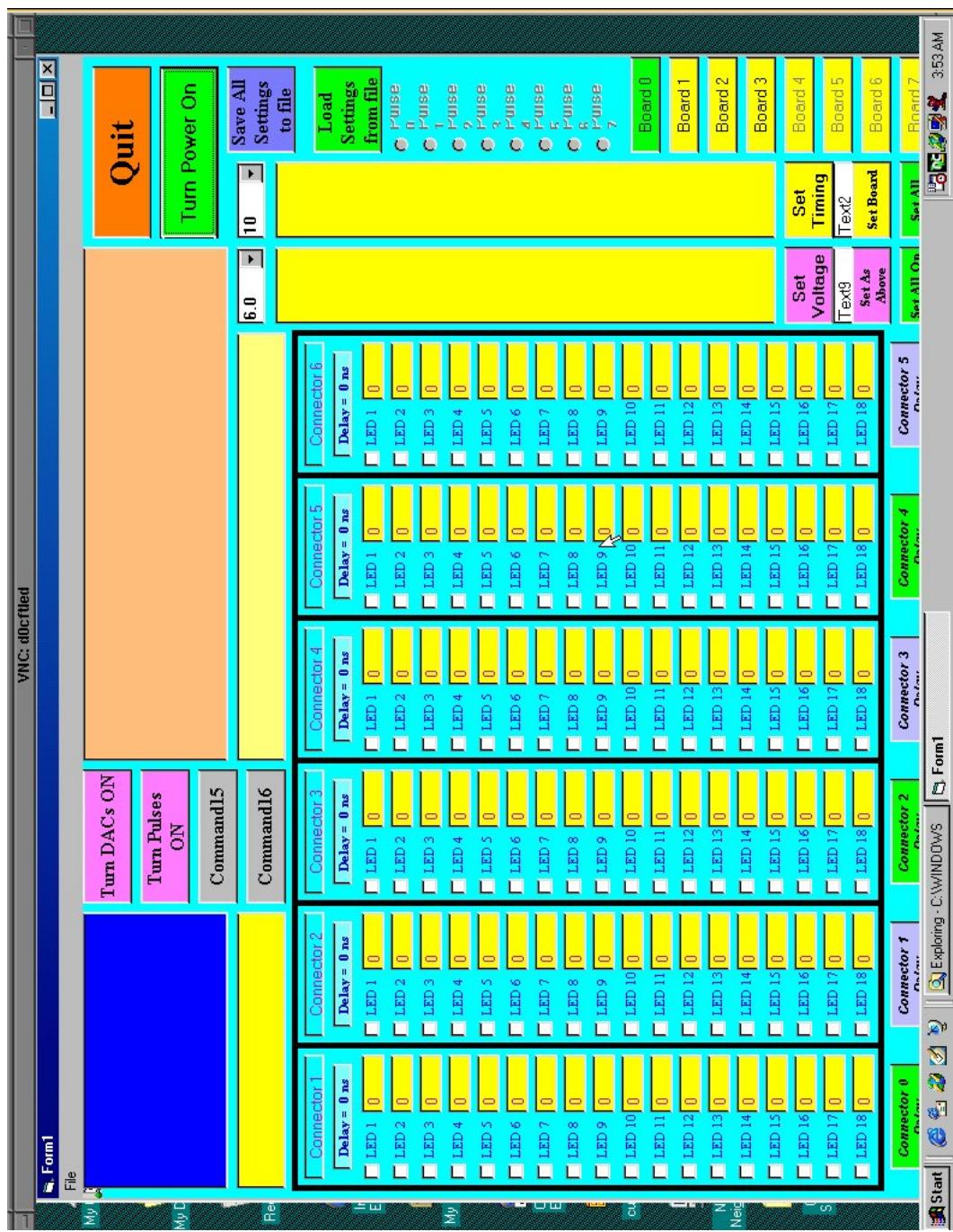
LED Pulser Software & VNC

To open LED pulser controller (LED power ON/OFF and LED voltage settings):

- open xterm
- setup vnc
- vncviewer d0cf1led

Password: ****

You are now logged into
the NT machine (vnc server)
that has software: 'Form1'
to control LEDs in
CFT+PS.



Windows NT machine for LED Pulser Software



DAQ Monitor

To launch DAQ Monitor, type from x-term:

DAQ Process Overview Fri Sep 13 21:12:53 2002

Overview	L1 Trigger	Col/Router	DataLogger	SDAQ	Distributor	DSM	L3 Filter
L1 Trigger Status	Up	Connection:	Up				
L2 Trigger Status	Up	Connection:	Up				
L3 Filter Status	Up	Connection:	Up				
Col/Router Status	Up	Connection:	Up				
DataLogger Status	Up	Connection:	Up				
SDAQ Status	Up	Connection:	Up				
Distributor Status	Up	Cor	DAQ Monitor				
DSM Status	Up	Cor	Overview	L1 Trigger	Col/Router	DataLogger	SDAQ

File Options Help

L1 Trigger Monitor Fri Sep 13 21:14:01 2002

Spec Trigger	Trig Details	Exp Group	Global	L1 Qualifiers	And/Or Term	Geo Sector
Specific Trigger Display	Trig Name	Fired (Hz)	And/Or Fired (Hz)	Exposed (Hz)	Prescaler Ratio	
Trig#						
0	ALiveBX	17.189	1715408.126	17.189	100000	
1	ALiveBX^2	372.743	1715408.126	372.743	4500	
2	ALiveBX^3	83.819	1715408.126	83.819	20000	



DAQ Monitor (cont.)

**Keep an eye on
0x50, 51, 52, 53.
If x50 thru x53
and things in the x60s
all go busy it's probably
the L2.
(and DAQ shifter will
take care of it.)**

Spec Trigger	Trig Details	Exp Group	Global	L1 Qualifiers	And/Or Term	DSM	L3 Filter	Geo Sector	
Geographical Sector Display									
GS#	L1 Err	L2 Err	Status	L1 Accept(Hz)	L2 Accept(Hz)	L1 Busy(%)	L2 Busy Raw(%)	L2 Busy Delay(%)	L2 Bz Cycles(%)
0x0	0	0	0x1100	474.732	100.794	0.0	0.0	0.0	0.0
0x1	0	0	0x1100	474.732	100.794	0.0	0.0	0.0	0.0
0x2	0	0	0x1100	474.732	100.794	0.0	0.0	0.0	0.0

Spec Trigger	Trig Details	Exp Group	Global	L1 Qualifiers	And/Or Term	DSM	L3 Filter	Geo Sector
L1 Trigger Monitor								
Overview	L1 Trigger	Co/Router	DataLogger	SDAQ	Distributor	DSM	L3 Filter	
Fri Sep 13 21:19:30 2002								

**A/so, keep an eye on
the CTT rates...

x13 and x14 relay
L1 CTT information,
while x24 and x25 relay
L2 CTT information**



A/O Term Grabber

To start the A/O Term Grabber:

- setup d0online
- cd /home/d0ctt/utils/AOTmon/
- start_AOTmon

The A/O Term Grabber provides the CTT experts with very important trigger rate information. To archive the information, simply enter the run number and current luminosity, then press 'Take Snapshot'.

This should be done every two hours during physics running, as per instructions in the E-Log automated forms. It is also useful to check the listed trigger rates against the CTT's plots of rates vs. luminosity at least once during a beam store.

Wed Dec 10 14:52:29 2003

Run Number	:	Luminosity	:	E30
33	1	0	0.0	83
34	1	0	0.0	84
35	1	0	0.0	85
36	1	0	189.575	86
37	1	0	0.0	87
38	1	0	0.0	88
39	1	0	0.0	89
40	1	0	0.0	90
41	1	0	0.0	91
42	1	0	0.0	92
43	1	0	0.0	93
44	1	0	0.0	94
45	1	0	0.0	95
46	1	0	0.0	96
47	1	0	47712.563	97

Take Snapshot



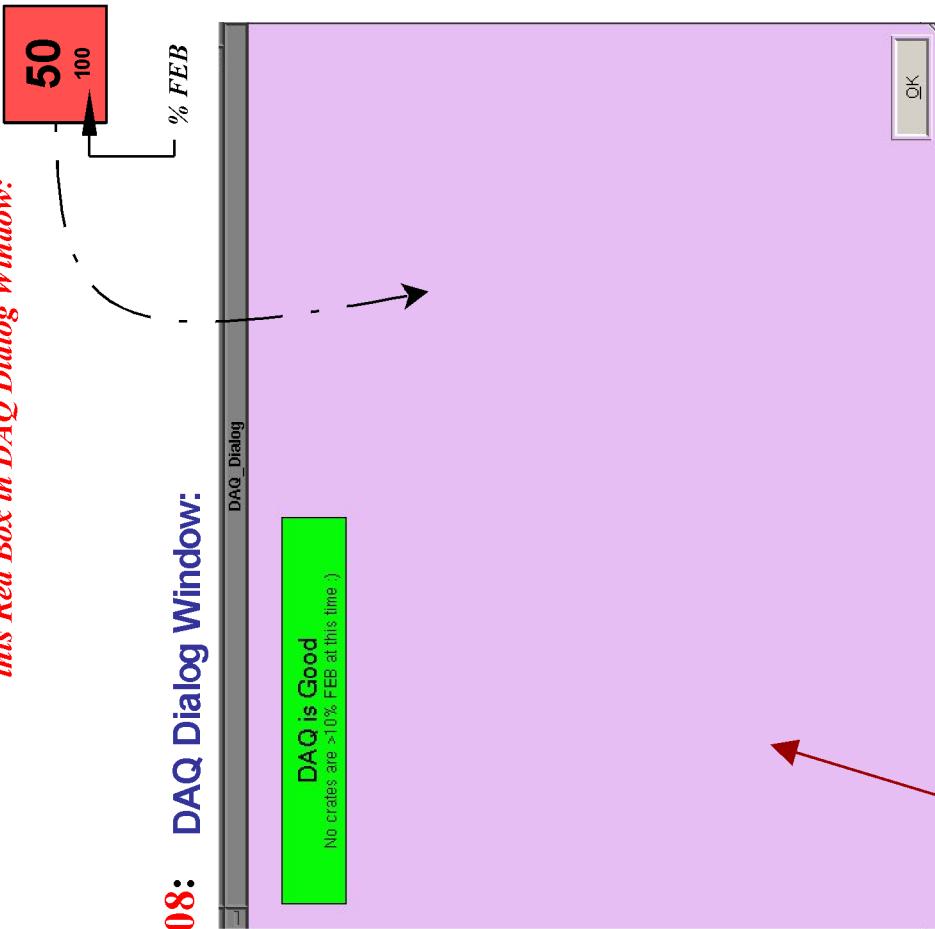
DAC Tool: l3x_qt_display & l3xmon

To launch l3x_qt_display, type at prompt in d00l35:

- setup d0online
- start_t_daq l3xqt

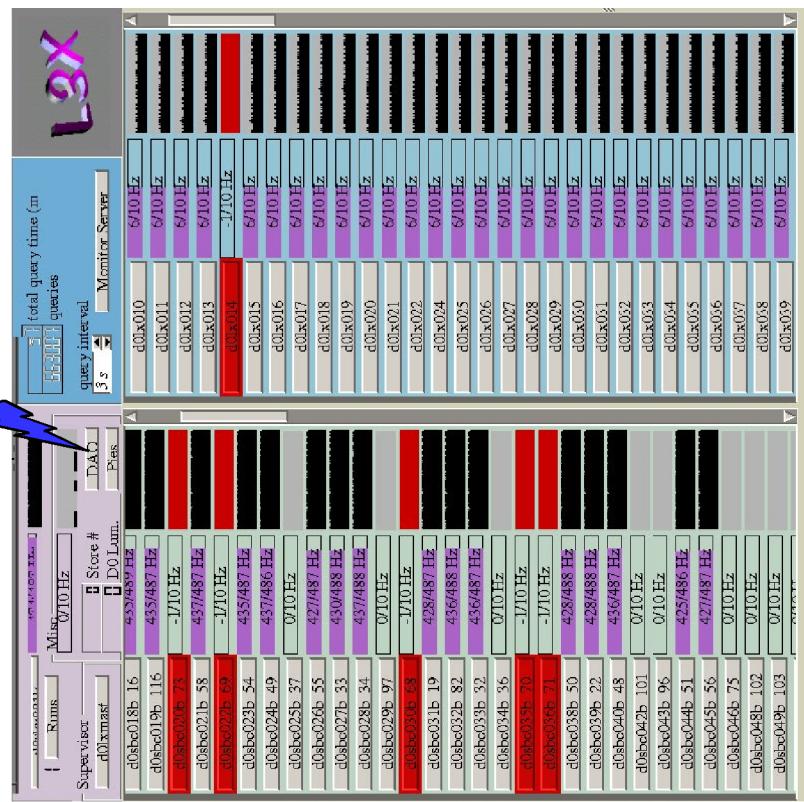
- also, in same console, launch l3xmon from d00l08: setup d0online start_t_daq l3xmon

If Crate x50 goes FEB, you get this Red Box in DAQ Dialog Window:



This window (in addition to the DAQ monitor) shows which crates have > 10% FEB.

Monitor to see status of crates x50, 51, 52, 53 and CTT crates (x13, 14, 24, 25)

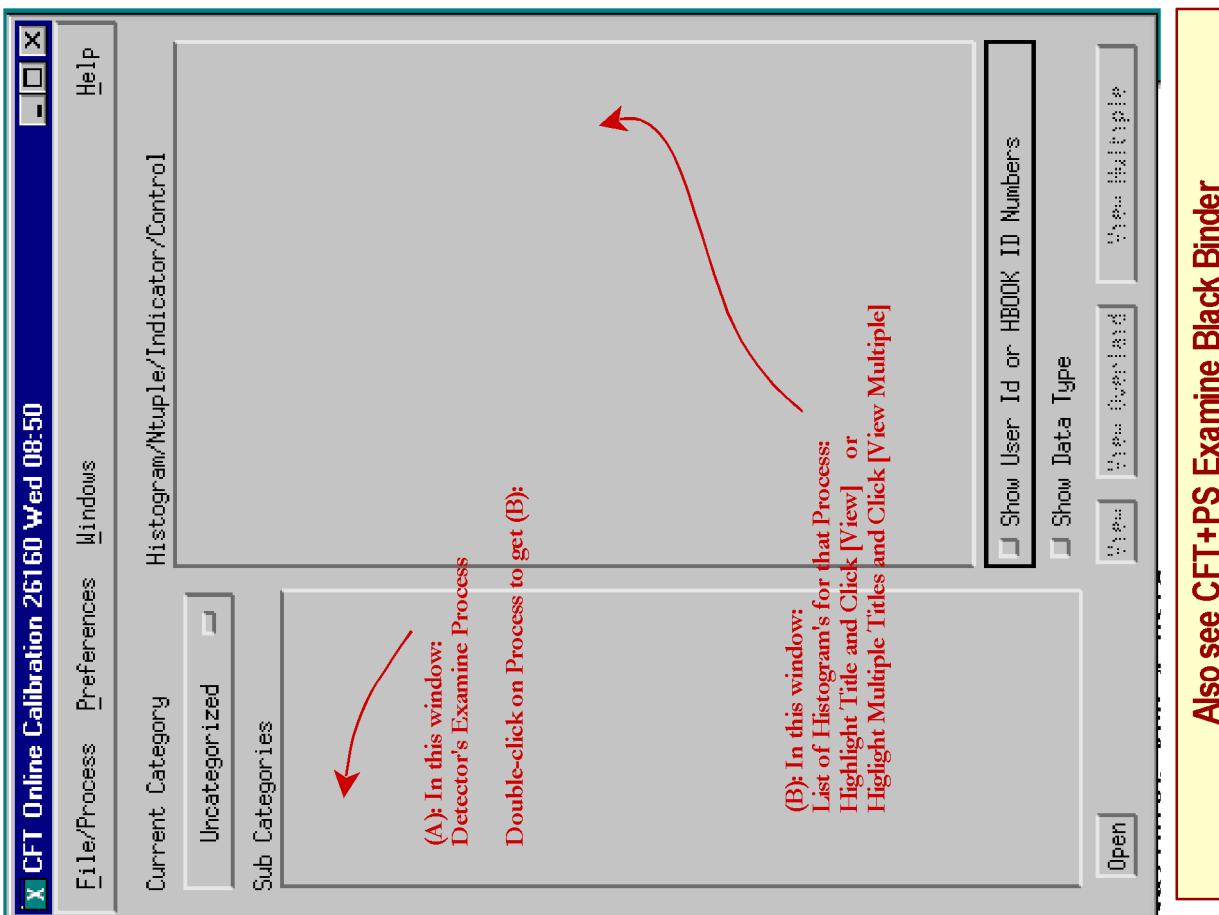




Histogram Based Examine

1. setup d0online
2. d0ssh d0o124
-- now you are connected to d0o124, then type:
4. setup histo
5. setup d0online
6. **start_daq cft_examine anything** or
start_daq cps_examine anything or
start_daq fps_examine anything
 - > Type: **init** <press enter>
 - > Type: **start** <press enter>

(use **zero_bias** instead of **anything** for ZB runs)
- a) In histo → File → Connect to process
 - Choose the examine process (CFT, CPS, or FPS) you just started.
 - Look at histograms by choosing desired histo and clicking [View] or [View Multiple].
 - c) To exit Examine, in the xterm that examine is running type: **stop** and then: **quit**



Be sure you zero examine regularly, that is the only way you will notice changes in the system. This is done by typing:
report cft_examine <enter> and then type: **resume <enter>**

Also see CFT+PS Examine Black Binder



Histograms

► Five examines

◆ CFT Examine

* 5 types of histogram

- Occupancy

- Number of hits

- Hit map useful

- Fired Fibers

- Triggered Fibers

- ADC spectrum

◆ CPS, FPS Examines

- Similar to CFT

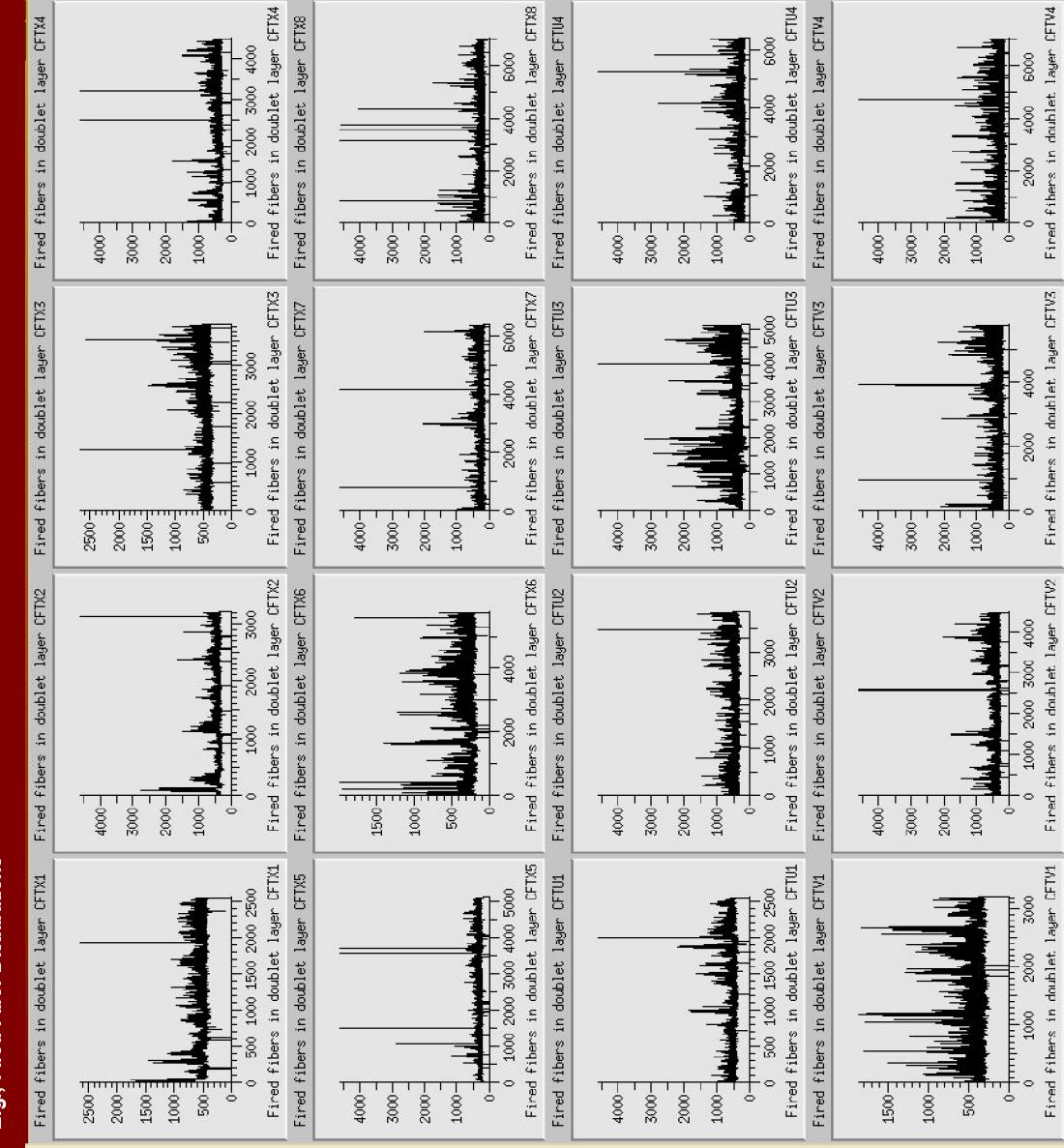
◆ PDAQ Examine

- Tick/Turn errors and more...

◆ CTT Examine

- Overlays...

E.g., Fired Fiber Distributions



See Black Binder on 'CFT+PS Monitoring and Examines' or the CFT webpage for Reference Examine Plots for all the systems.



PDAQ Examine

To start the PDAQ Examine, type:

- setup d0online
- d0ssh d00l35
- setup d0online
- start_daq pdaq_examine

The PDAQ Examine

shows many different kinds of errors that can

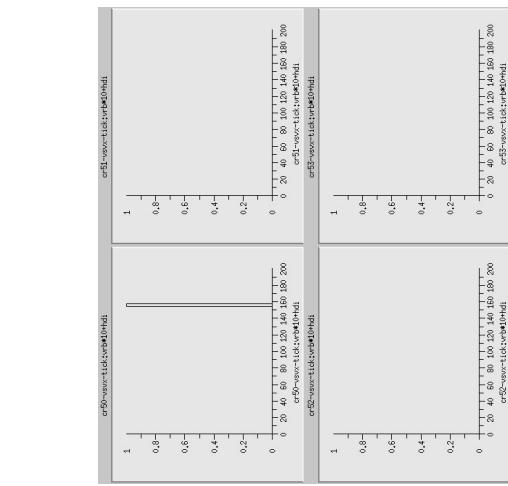
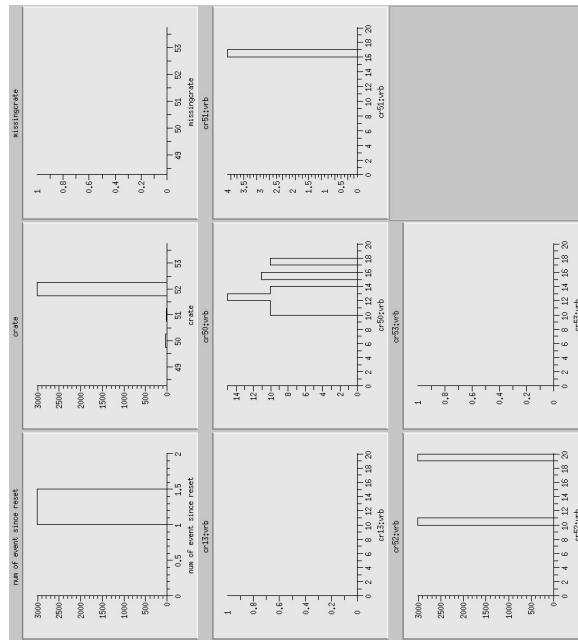
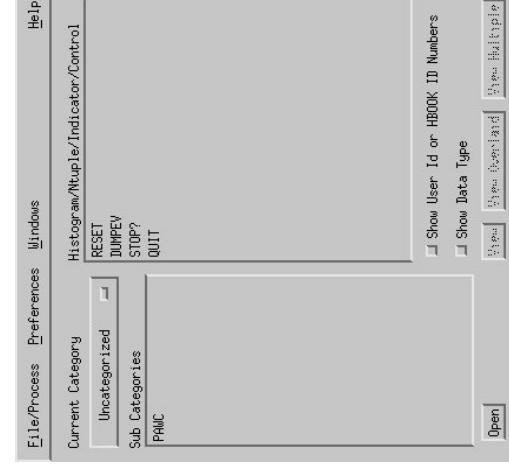
occur in the data from our crates. If the TICK

errors are rising quickly with the 'total number of events' histogram, the offending crate will need

an 'Init VRBC' from the cft_gui.

This histoscope based examine is reset using buttons, not by typing.

Choose RESET then press View to bring up the RESET button...remember to use the QUIT button!



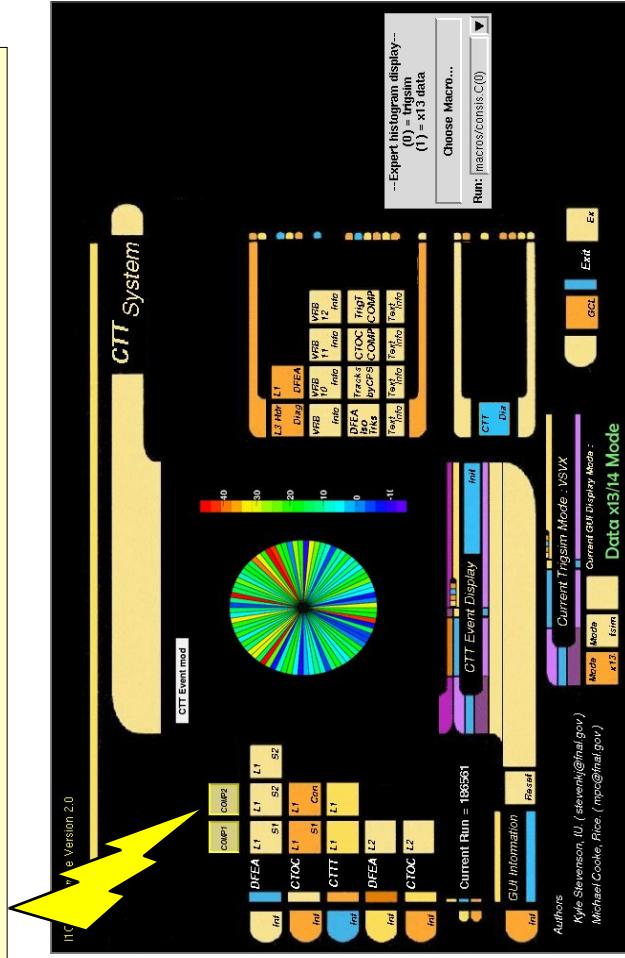
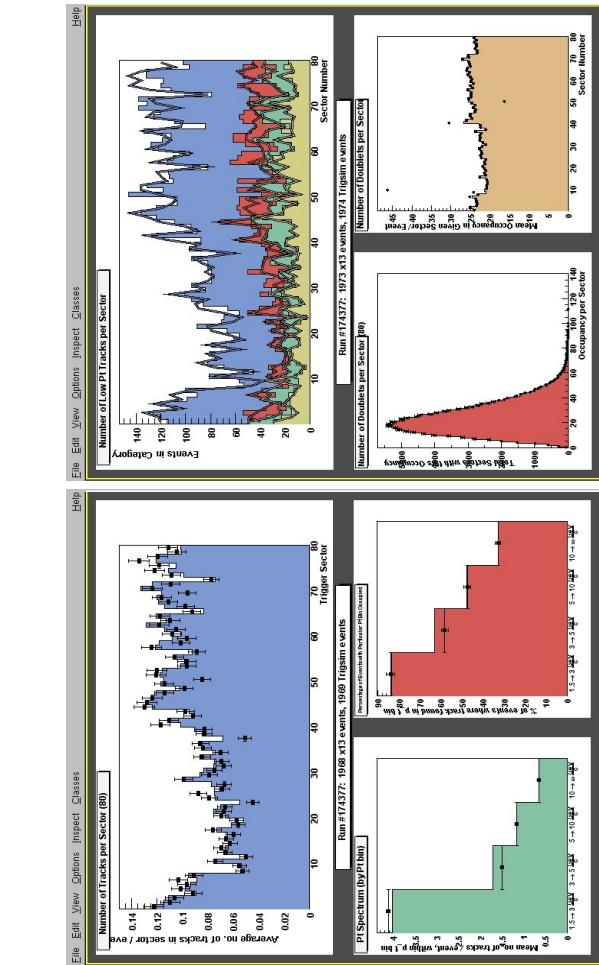


CTT Examine

The CTT Examine looks at both live trigger output from crate x13 and also simulates trigger output from AFE information. The 'COMP' plots show an overlay of both these data types. When the system is working properly, the colored histograms of simulated output should match the dots from live data.

- To start the CTT Examine:
- setup d0online
 - d0ssh d00l35
 - setup d0online
 - start_daq ctt_examine vsvx_global
(or vsvx_zero for a zero bias run)

Use the COMP1 and COMP2 buttons to monitor the CTT.





DFE Ware

DFE Controllers

Double Click Controller Panel To Update Status Right Click Controller Panel For Command Menu

PC03,PC19,PC20	PC04,PC03,Test	PC04,PC03,2_1	CMR DTE CFR FNF FUL DL	DFEC	Busy	Idle	Halt	DFEC,PC04_2_1	CMR DTE CFR FNF FUL DL	DFEC	Busy	Idle	Halt	DFEC,PC03_1_1	CMR DTE CFR FNF FUL DL	DFEC	Busy	Idle	Halt	DFEC,PC03_2_1	CMR DTE CFR FNF FUL DL	DFEC	Busy	Idle	Halt	DFEC,PC19_2_1	CMR DTE CFR FNF FUL DL	DFEC	Busy	Idle	Halt	DFEC,PC20_2_1	CMR DTE CFR FNF FUL DL
PC03,PC19,PC20	PC04,PC03,Test	PC04,PC03,2_1	CMR DTE CFR FNF FUL DL	DFEC	Busy	Idle	Halt	DFEC,PC04_2_1	CMR DTE CFR FNF FUL DL	DFEC	Busy	Idle	Halt	DFEC,PC03_1_1	CMR DTE CFR FNF FUL DL	DFEC	Busy	Idle	Halt	DFEC,PC03_2_1	CMR DTE CFR FNF FUL DL	DFEC	Busy	Idle	Halt	DFEC,PC19_2_1	CMR DTE CFR FNF FUL DL	DFEC	Busy	Idle	Halt	DFEC,PC20_2_1	CMR DTE CFR FNF FUL DL

Status: |DFEC,PC03_2_1| is idle

DFE Information Monitor

Point mouse to the Trigger Sector and click to get into (Double) Click on a trigger Sector and click to access detailed information

Detailed info:

- Trigger Sector Number: not selected
- DFE Controller: DFEA Board
- Slow monitor bits: 7 6 5 4 3 2 1 0
- Legend:
 - Track found info: Track found info
 - L1ACCEPT Info: L1ACCEPT Info
 - SYNC_GRF Info: SYNC_GRF Info
 - No info available: No info available
 - BITS set: BITS set
 - BITS not set: BITS not set
 - SYNC_GRF monitor is NOT stable (will <ResetDFEA Monitor> to clean): SYNC_GRF monitor is NOT stable (will <ResetDFEA Monitor> to clean)

DFEA status: data mode

LVDS link status: data mode

Reset DFEA Monitor No Yes

Close

DFE Ware tracks the firmware of the CTT system.
The 'DFE Status' tab brings up a chart of vertical bars representing programmed boards, which should normally be completely green. The 'Get CTT Status' button displays an information box about CTT settings (this information is used to fill out forms in the E-log!). The 'Monitoring' menu item can bring up a circular DFEA card display, which should also normally be green.

The 'Fix CTT' button is the biggest hammer in the CTT system, and should be saved for last!

- To start DFE Ware:
- setup d0online
 - dfe_ware



FEB_Util

► FEB_UTIL

- ♦ Tool to help monitor status of AFE and Sequencers
- ♦ Currently used to help diagnose FEBs for CFTT, CPS, FPS, CTT crates
- ♦ Consists of 0 and 1 as a function of AFE/SEQ and HDI
- ♦ Must click 'Update Now' to refresh!

(A)

		File		View		Update		CFT FEB Diagnostic Gui		0x53:CFTT		0x53:CFTC		CFT.CFTR		0x53:CFTT		0x09:CFTT		CFT.VRBC.930E		0x3:LCFTT	
		0x50:CFTA		0x51:CFTS		0x52:CFTC		CFT.CFTR		/SCLSTATUS.R:0x0		/SCLSTATUS.R:0x1		/SCLSTATUS.R:0x2		/SCLSTATUS.R:0x3		/SCLSTATUS.R:0x4		/SCLSTATUS.R:0x5			
		CFTA.VRBC.200E		CFTS.VRBC.510E		CFTC.VRBC.530E		CFTC.VRBC.532E		SCL Ready:0		SCL Ready:1		SCL Sync Error:0		SCL Sync Error:1		SCL Sync Error:0		SCL Sync Error:1			
		/SCLSTATUS.R:0x0		SCL Ready:0		SCL Sync Error:0		Not Finished:0		Scan Busy:0		Scan Busy:1		Readout Ready:0		Readout Ready:1		Readout Ready:0		Readout Ready:1			
		SCL Ready:0		SCL Sync Error:0		Not Finished:0		Scan Busy:0		Scan Busy:1		Readout Ready:0		Readout Ready:1		Readout Ready:0		Readout Ready:1		Readout Ready:0			
		SCL Sync Error:0		Not Finished:0		Scan Busy:0		Scan Busy:1		Readout Ready:0		Readout Ready:1		Readout Ready:0		Readout Ready:1		Readout Ready:0		Readout Ready:1			
		Scan Busy:0		Scan Busy:1		Readout Ready:0		Readout Ready:1		Readout Ready:0		Readout Ready:1		Readout Ready:0		Readout Ready:1		Readout Ready:0		Readout Ready:1			
		Readout Ready:0		Readout Ready:1		Readout Ready:0		Readout Ready:1		L1 Error:0		L2 Error:0		L1 Error:0		L2 Error:0		L1 Error:0		L2 Error:0			
		L1 Error:0		L2 Error:0		L1 Error:0		L2 Error:0		L1 busy:0		L2 busy:0		L1 busy:0		L2 busy:0		L1 busy:0		L2 busy:0			
		L1 busy:0		L2 busy:0		L1 busy:0		L2 busy:0		L1 busy:0		L2 busy:0		L1 busy:0		L2 busy:0		L1 busy:0		L2 busy:0			

Click on [0x50:CFTA] gives: (B)

VRB	RO Bsy	Scan Bay	Sequencer	HDI #	NRZ	NRZ	HD1	TNBR	BNNR1	BNNR2	BNNR3	TOP	BNNR4	HD1	TNBR
500C	0	0	CFTA_SEQ_0380D	0	0	0	0x7d	1	1	1	1	1	1	0x13	1
				1	0	0	0x7d	1	1	1	1	1	1	0x13	1
				2	0	0	0x7d	1	1	1	1	1	1	0x13	1
				3	0	0	0x7d	1	1	1	1	1	1	0x13	1
500D	0	0	CFTA_SEQ_0380E	0	0	0	0x7c	1	1	1	1	1	1	0x7c	1
				1	0	0	0x7c	1	1	1	1	1	1	0x7c	1
				2	0	0	0x7c	1	1	1	1	1	1	0x7c	1
				3	0	0	0x7c	1	1	1	1	1	1	0x7c	1
500F	0	0	CFTA_SEQ_03810	0	0	0	0x7c	1	1	1	1	1	1	0x7c	1
				1	0	0	0x7c	1	1	1	1	1	1	0x7c	1
				2	0	0	0x7c	1	1	1	1	1	1	0x7c	1
				3	0	0	0x7c	1	1	1	1	1	1	0x7c	1
500A	0	0	CFTA_SEQ_03811	0	0	0	0x7c	1	1	1	1	1	1	0x7c	1
				1	0	0	0x7d	1	1	1	1	1	1	0x7c	1
				2	0	0	0x7d	1	1	1	1	1	1	0x7c	1
				3	0	0	0x7d	1	1	1	1	1	1	0x7c	1
5011	0	0	CFTA_SEQ_03813	0	0	0	0x7c	1	1	1	1	1	1	0x7c	1
				1	0	0	0x7c	1	1	1	1	1	1	0x7c	1
				2	0	0	0x7c	1	1	1	1	1	1	0x7c	1
				3	0	0	0x7c	1	1	1	1	1	1	0x7c	1
500B	0	0	CFTA_SEQ_03814	0	0	0	0x7c	1	1	1	1	1	1	0x7c	1
				1	0	0	0x7c	1	1	1	1	1	1	0x7c	1
				2	0	0	0x7c	1	1	1	1	1	1	0x7c	1
				3	0	0	0x7c	1	1	1	1	1	1	0x7c	1
5014	0	0	CFTA_SEQ_03815	0	0	0	0x7c	1	1	1	1	1	1	0x7c	1
				1	0	0	0x7c	1	1	1	1	1	1	0x7c	1
				2	0	0	0x7c	1	1	1	1	1	1	0x7c	1
				3	0	0	0x7c	1	1	1	1	1	1	0x7c	1

Lights increment at updates:

Update Now

Exit

To start feb_util, from xterm do:

- setup d0online
- start_daq feb_util

→ pops open window (A) below

The cft_gui has a quick feb_util button, as well! This is often an easier way to diagnose the problem quickly!



Also, the 'TROUBLE' button lists busy VRBs in the CFT crates!



FEB_Util (cont.)

- Diagnose Front-End Busys for CFT+PS crates
- One window for each of the 4 crates for monitoring system status

For Example,

☞ During 'stable' CFT+PS operation, 0 and 1's look similar to:

VRB	SEQ	HDI		Top		Bottom	
		0	0	0x7c	1	1	1
500B	0	0	0	0x7c	1	1	1
	CFTA_SEQ_03B0E	0	0	0x7c	1	1	1
		0	0	0x7c	1	1	1
		0	0	0x7c	1	1	1
		0	0	0x7c	1	1	1

☞ Now, Crate x50 goes FEB (see DAQ monitor or |3x_qt_display)

☞ Click [update] on FEB_UTIL

☞ One of the Sequencers (here, SEQ_03B0E) in crate x50 may appear as:

VRB	SEQ	HDI		Top		Bottom	
		0	0	0x0	0	0	0
500B	0	0	0	0x0	0	0	0
	CFTA_SEQ_03B0E	1	1	0x0	0	0	0
		0	0	0x0	0	0	0
		0	0	0x0	0	0	0
		0	0	0x0	0	0	0

Solution: Bring up a TROUBLE button in the E-Log. The trouble button has categories for 'All VRBs in crate are busy' and 'Some VRBs in crate are busy'. Follow the listed solutions for the current scenario.



Alarm System

File View Settings

Group Name	MAJOR	MINOR	INVALID	ACKED	DISABLED	GOOD
Low voltage supplies	0	0	0	0	30	4
Temperature control	8	0	0	0	13	0
Bias voltages	0	15	0	0	0	0
Sequencer and controller	0	0	0	0	0	1
AFE	0	9	3	0	9	3
DFE	0	0	0	0	0	0
CTT	0	1	0	0	0	1
PDAQ	0	0	0	0	0	0
Utility	0	1	1	0	7	1
Total	8	26	4	0	59	8

Status: |Connection to server opened

Temperature control Major Alarms

- CFTA_AFE_7A5/TCT1
- CFTA_AFE_7A5/TCT2
- CFTA_AFE_7A5/TCT3
- CFTA_AFE_7A5/TCT4
- CFTA_AFE_7A5/TCT5
- CFTA_AFE_7A5/TCT6
- CFTA_AFE_7A5/TCT7
- CFTA_AFE_7A5/TCT8

SHOW ACK ACK_ALL DISABLE DISABLE_ALL CLOSE

***** CFTA_AFE_7A5/TCT1 *****

Alarm cause: Lolo alarm
 Alarm value: -3.385649
 HiHi limit: 9.110000
 High limit: 9.090000
 Low limit: 8.950000
 Lolo limit: 8.930000

Message contents:

```
v4
ef{1,9}
alarm
CFTA_AFE_7A5/TCT1
0
d00t15
0
none
none
bad
major
analog
calc 5 - 3.385649 9.110000 9.090000 8.950000 8.930000
```

timestamp: Wed Dec 10 13:11:45 2003

message type:

name: CFTA_AFE_7A5/TCT1

priority: 0

host: d00t15

db entry: 0

parent: none

children: none

transition: bad

severity: major

alarm type: analog

parameters: calc 5 - 3.385649 9.110000 9.090000 8.950000 8.930000

CLOSE DISABLE CONTROL GUIDANCE COMMAND CLOSE

To start the alarm display, type:
 setup d0online
 start_daq cft_alarm_display

Guidance from /online/config/ses/guidance/cft/CFTA_AFE_TCT1_7A5.txt:

Temperature for module 1 in VLPc cassette readout by board TAS.
 This module is not connected to fiber tracker. Therefore the alarm, if persistent, can be disabled usually some time later the temperature of EAST cryostat needs to be lowered by 0.1K. Plot cryo for crate 0x50 t o see what is going on.

Guidance from /online/config/ses/guidance/cft/CFTA_AFE.txt:

Process Variables monitored on analog front end (AFE) boards:

AFET: Temperature of AFE board,
 TCTx: Temperature of module x in cryo cassette to which AFE board is connected,
 VLPUDx_Bias_readBias_Set for VLPcs in module x in cryo cassette to which AFE board is connected,
 The syntax of name is what it seems to be, for example: CFTA_AFE_8A2/VLPUD2 is bias.readBias_Set for VLPcs in module 2 of a cryo cassette on which board 8A2 is mounted, the AFE board is read out by VME crate 0x50 (CFTA_0x50, CFTS_0x51, CFTS_0x52, CFTS_0x53), Guidance from /online/config/ses/guidance /cft/CFTA_AFE.txt:

Process Variables monitored on analog front end (AFE) boards:

AFET: Temperature of AFE board,
 TCTx: Temperature of module x in cryo cassette to which AFE board is connected,
 VCOVx_Volt: Voltage of Heater in module x in cryo cassette to which AFE board is connected,
 VLPUDx_Bias_readBias_Set for VLPcs in module x in cryo cassette to which AFE board is connected,

CLOSE

The experts tend the alarm system to keep known problems from displaying alarms when possible. Keep an eye on the alarm display. If Major Alarms appear, note what they are in the logbook. It may also be useful to choose an alarm and click 'Show', then 'Guidance' to see if any useful troubleshooting information is provided.



IOC Monitor

Screenshot of the IOC Monitor application interface. The window title is 'IOC Monitor'. The menu bar includes 'File', 'View', 'Help' (selected), and tabs for 'CAL', 'CFT', 'CTL', 'MUO', 'MUO/R', 'SMT', 'SMT/R', 'FPD', 'STT', and 'Test'. The main area displays a table of IOC nodes:

IOC Node	GSId	CPU %	Mem %	FD %	Platform
d0olct5		1	40	15	Reboot
d0olct58		1	19	20	Reboot
d0olct04	0x50	0	5	8	Reboot
d0olct05	0x51	0	5	9	Reboot
d0olct06	0x52	0	5	36	Reboot
d0olct07	0x53	0	5	36	Reboot
					Central Track Trigger
d0olct00		0	9	34	Reboot
					Combined Test Stand
d0olct61		0	22	36	Reboot

The status bar at the bottom shows 'Status: ' followed by a red 'Reboot' button.

During normal operating conditions, the entire 'CFT' tab of the IOC Monitoring display should appear green. A row of grey means an IOC, and therefore likely a crate, is not powered on. During calibration runs, crates usually experience high 'CPU %' and 'Mem %' rates.

The two top rows, 'd0olct55' and 'd0olct58', monitor the status of hardware used to generate **CFT alarms**. If either of these rows are not green, then the corresponding 1553 controller card on the 3rd floor moving counting house may need to be reset. (In this case, talk to the DAQ shifter for assistance.)

To start the IOC Monitor, type:
➤ setup d0online
➤ start_daq ioc



AFE Power Supplies

	debug: off	global parameter	update EPICS	feb_utl	close LogFile	quit
L1CTT_VRBCR_13						
VRBCR_50	download	reinit VME	init VRBC	off TmpCtl	plot ThreshVrefVthres	init VRBC
VRBCR_51	download	reinit VME	init VRBC	off TmpCtl	plot ThreshVrefVthres	details
VRBCR_52	download	reinit VME	init VRBC	off TmpCtl	plot ThreshVrefVthres	details
VRBCR_53	download	reinit VME	init VRBC	off TmpCtl	plot ThreshVrefVthres	details
VRBCR_AFE_TEST	download	reinit VME	init VRBC	off TmpCtl	plot ThreshVrefVthres	details
VRBCR_50	download	reinit VME	init VRBC	off TmpCtl	plot ThreshVrefVthres	plot cryo
						plot bias
						details
AFC commands C						
VRBCR_50 VRBC_50 VBD_50	SEQC_03B011					
VRB-5012 VRB-5012 SEQ-03B013	SEQ-03B013	SVXs on: AFE_6A0	SV	AFC power on A		
VRB-5012 VRB-5012 SEQ-03B013	SEQ-03B013	SVXs on: AFE_6A2	SV	AFC power off A		
VRB-5013 VRB-5013 SEQ-03B014	SEQ-03B014	SVXs on: AFE_6A2	SV	AFC power on B		
VRB-5013 VRB-5013 SEQ-03B014	SEQ-03B014	SVXs on: AFE_6A2	SV	AFC power off B		
VRB-5013 VRB-5013 SEQ-03B014	SEQ-03B014	SVXs on: AFE_6A2	SV	power on crate		
VRB-5013 VRB-5013 SEQ-03B014	SEQ-03B014	SVXs on: AFE_6A2	SV	power off crate		
VRB-5013 VRB-5013 SEQ-03B014	SEQ-03B014	SVXs on: AFE_6A2	SV	print status		
VRB-5013 VRB-5013 SEQ-03B014	SEQ-03B014	SVXs on: AFE_6A2	SV	enable power	AFC_6A0	AFC_6A1
VRB-5013 VRB-5013 SEQ-03B014	SEQ-03B014	SVXs on: AFE_6A2	SV	disable power	AFC_6A2	AFC_6A3
VRB-5013 VRB-5013 SEQ-03B014	SEQ-03B014	SVXs on: AFE_6A2	SV	print state	AFC_6A4	AFC_6A5
VRB-5013 VRB-5013 SEQ-03B014	SEQ-03B014	SVXs on: AFE_6A2	SV	print	SV	
VRB-5013 VRB-5013 SEQ-03B014	SEQ-03B014	SVXs on: AFE_6A2	SV	SVXs on: AFE_6A6	SV	
VRB-5013 VRB-5013 SEQ-03B014	SEQ-03B014	SVXs on: AFE_6A2	SV	SVXs on: AFE_6A7	SV	
VRB-5013 VRB-5013 SEQ-03B014	SEQ-03B014	SVXs on: AFE_6A2	SV	SVXs on: AFE_6B1	SV	
VRB-5013 VRB-5013 SEQ-03B014	SEQ-03B014	SVXs on: AFE_6A2	SV	SVXs on: AFE_6B3	SV	
VRB-5013 VRB-5013 SEQ-03B014	SEQ-03B014	SVXs on: AFE_6A2	SV	SVXs on: AFE_6B5	SV	
VRB-5013 VRB-5013 SEQ-03B014	SEQ-03B014	SVXs on: AFE_6A2	SV	SVXs on: AFE_6B6	SV	
VRB-5013 VRB-5013 SEQ-03B014	SEQ-03B014	SVXs on: AFE_6A2	SV	SVXs on: AFE_6B7	SV	
VRB-5013 VRB-5013 SEQ-03B014	SEQ-03B014	SVXs on: AFE_6A2	SV	SVXs on: AFE_7A1	SV	
VRB-5013 VRB-5013 SEQ-03B014	SEQ-03B014	SVXs on: AFE_6A2	SV	SVXs on: AFE_7A2	SV	
VRB-5013 VRB-5013 SEQ-03B014	SEQ-03B014	SVXs on: AFE_6A2	SV	SVXs on: AFE_7A3	SV	
VRB-5013 VRB-5013 SEQ-03B014	SEQ-03B014	SVXs on: AFE_6A2	SV	SVXs on: AFE_7A4	SV	
VRB-5013 VRB-5013 SEQ-03B014	SEQ-03B014	SVXs on: AFE_6A2	SV	SVXs on: AFE_7A5	SV	
VRB-5013 VRB-5013 SEQ-03B014	SEQ-03B014	SVXs on: AFE_6A2	SV	SVXs on: AFE_7B1	SV	
VRB-5013 VRB-5013 SEQ-03B014	SEQ-03B014	SVXs on: AFE_6A2	SV	SVXs on: AFE_7B2	SV	
VRB-5013 VRB-5013 SEQ-03B014	SEQ-03B014	SVXs on: AFE_6A2	SV	SVXs on: AFE_7B4	SV	
VRB-5013 VRB-5013 SEQ-03B014	SEQ-03B014	SVXs on: AFE_6A2	SV	SVXs on: AFE_7B6	SV	
VRB-5013 VRB-5013 SEQ-03B014	SEQ-03B014	SVXs on: AFE_6A2	SV	SVXs on: AFE_7B7	SV	
VRB-5013 VRB-5013 SEQ-03B014	SEQ-03B014	SVXs on: AFE_6A2	SV	SVXs on: AFE_8A1	SV	
VRB-5013 VRB-5013 SEQ-03B014	SEQ-03B014	SVXs on: AFE_6A2	SV	SVXs on: AFE_8A2	SV	
VRB-5013 VRB-5013 SEQ-03B014	SEQ-03B014	SVXs on: AFE_6A2	SV	SVXs on: AFE_8A3	SV	
VRB-5013 VRB-5013 SEQ-03B014	SEQ-03B014	SVXs on: AFE_6A2	SV	SVXs on: AFE_8A4	SV	
VRB-5013 VRB-5013 SEQ-03B014	SEQ-03B014	SVXs on: AFE_6A2	SV	SVXs on: AFE_8A5	SV	
VRB-5013 VRB-5013 SEQ-03B014	SEQ-03B014	SVXs on: AFE_6A2	SV	SVXs on: AFE_8A6	SV	
VRB-5013 VRB-5013 SEQ-03B014	SEQ-03B014	SVXs on: AFE_6A2	SV	SVXs on: AFE_8A7	SV	
VRB-5013 VRB-5013 SEQ-03B014	SEQ-03B014	SVXs on: AFE_6A2	SV	SVXs on: AFE_8B1	SV	
VRB-5013 VRB-5013 SEQ-03B014	SEQ-03B014	SVXs on: AFE_6A2	SV	SVXs on: AFE_8B2	SV	
VRB-5013 VRB-5013 SEQ-03B014	SEQ-03B014	SVXs on: AFE_6A2	SV	SVXs on: AFE_8B3	SV	
VRB-5013 VRB-5013 SEQ-03B014	SEQ-03B014	SVXs on: AFE_6A2	SV	SVXs on: AFE_8B4	SV	
VRB-5013 VRB-5013 SEQ-03B014	SEQ-03B014	SVXs on: AFE_6A2	SV	SVXs on: AFE_8B5	SV	
VRB-5013 VRB-5013 SEQ-03B014	SEQ-03B014	SVXs on: AFE_6A2	SV	SVXs on: AFE_8B6	SV	
VRB-5013 VRB-5013 SEQ-03B014	SEQ-03B014	SVXs on: AFE_6A2	SV	SVXs on: AFE_8B7	SV	

The cft_gui can cycle the power of AFE crates. First, the 'details' page for a readout crate that contains the AFE crate must be opened...

LEFT CLICK on one of the green 'AFE crate #' boxes to bring up the power supply dialogue box.

AFE power supplies are divided into two output halves, 'A' and 'B', which can be operated independently. Operating a 'crate' will adjust both the 'A' and 'B' DC outputs. The 'enable power' and 'disable power' options adjust the AC input to the power supply itself.



DFE & Sequencer Power Supplies

File		View		Help	
North Side		South Side			
		Output Power	Enabled	Output Power	Enabled
CFT 04-1	AC Status On	Enabled	Enabled	Enabled	Enabled
	-5.2V	Output Power	Enabled	-5.2V	-5.16
	5V	5V	Enabled	5V	5.18
CTT 03-1	AC Status On	Output Power	Enabled	Output Power	Enabled
	3.3V	3.3V	Enabled	3.3V	3.47
	5V	5V	Enabled	5V	5.31
CTT 03-2	AC Status On	Output Power	Enabled	Output Power	Enabled
	3.3V	3.3V	Enabled	3.3V	3.46
	5V	5V	Enabled	5V	5.32
CTT 03-3	AC Status On	Output Power	Enabled	Output Power	Enabled
	3.3V	3.3V	Enabled	3.3V	3.47
	5V	5V	Enabled	5V	5.32
	5.07				
Power Control					

Status: GUI initialization complete

To start the DFE & SEQ power supply GUI, from '/mnt/group/d0cft', type:
 > setup d0online
 > dfe_gui.py

This GUI monitors and controls the DFE and sequencer power supplies on the platform.

Power Control for the South Side					
Power Control for the West Side					
CFT 04-1		CTT 03-1		CTT 19-2	
<input type="checkbox"/> On	<input type="checkbox"/> Off	<input type="checkbox"/> Off	<input type="checkbox"/> Reset & On	<input type="checkbox"/> All Off	<input type="checkbox"/> On
<input type="checkbox"/> On	<input type="checkbox"/> Off	<input type="checkbox"/> Off	<input type="checkbox"/> Reset & On	<input type="checkbox"/> All Off	<input type="checkbox"/> On
<input type="checkbox"/> On	<input type="checkbox"/> Off	<input type="checkbox"/> Off	<input type="checkbox"/> Reset & On	<input type="checkbox"/> All Off	<input type="checkbox"/> On
<input type="checkbox"/> On	<input type="checkbox"/> Off	<input type="checkbox"/> Off	<input type="checkbox"/> Reset & On	<input type="checkbox"/> All Off	<input type="checkbox"/> On
<input type="checkbox"/> On	<input type="checkbox"/> Off	<input type="checkbox"/> Off	<input type="checkbox"/> Reset & On	<input type="checkbox"/> All Off	<input type="checkbox"/> On

File

Power Control for the North Side			
Power Control for the West Side			
CFT 04-1		CTT 03-2	
<input type="checkbox"/> On	<input type="checkbox"/> Off	<input type="checkbox"/> Off	<input type="checkbox"/> All Off
<input type="checkbox"/> On	<input type="checkbox"/> Off	<input type="checkbox"/> Off	<input type="checkbox"/> All Off
<input type="checkbox"/> On	<input type="checkbox"/> Off	<input type="checkbox"/> Off	<input type="checkbox"/> All Off
<input type="checkbox"/> On	<input type="checkbox"/> Off	<input type="checkbox"/> Off	<input type="checkbox"/> All Off



Troubleshooting Basics



► Only Power Cycle when advised by Expert!

- ♦ VRB crates in MCH2 (x50-53) - CFT Expert
- ♦ AFE crates (left click from cft_gui) - CFTT Expert
- ♦ Sequencers (DFE & SEQ gui) - CFT Expert
- ♦ DFE crates (DFE & SEQ gui) - CTTT Expert

► Global Parameters...

- ♦ Easiest way to fix something is never to break it; check their values before each download.

► CFT+PS creates go Front-End Busy (FEB)

- ♦ Use the 'TROUBLE' button from the E-Log, check alarms & webpage!
- ♦ If this fails or you have any doubts, call the CFT expert!

► CTT creates go FEB

- ♦ Try running scripts on next slide & check the webpage
- ♦ If these fail or you have any doubts, call the CTT expert!

► In case of Power Failure on the platform: CALL EXPERTS!

- ♦ Power-on and downloads are potentially hazardous after an outage!



CTT Troubleshooting

These suggestions current as of 3/26/04...
check CTT webpage for updates!

Note: dfe_ware macros should be run from: /mnt/group/d0cf/dfe_macro/

► In case of X13 FEB:

- ◆ SCLimit once, maybe twice.
 - ◆ Go to CTT Console #10 and run "python L1cttLoad.py" (no SCLimit required)
 - ◆ Go to CTT Console #11 and run "dfe_ware macro=restoreDefaults.macro", then SCLimit
 - ◆ Fix CTT from def_ware gui
- In case of STT problem:
- ◆ SCLimit once, maybe twice.
 - ◆ Go to console #11 and run "dfe_ware macro=resetSTT.macro", then SCLimit
- If these fail, check webpage then call CTT Expert



CTT Troubleshooting 2

The CTT monitoring displays provide a large amount of information, some intended to identify CTT problems quickly for the shifter to correct, some intended for CTT experts only.

The monitoring windows are **l1ctt_mon**, **l2ctt_mon**, **fps_mon** and **dfe_mon**. In general, the first 4-5 rows in each display should be green (see CTT webpage for details).

If something in an upper row is red, then a script corresponding to the offending display should be run:

```
dfe_ware macro=restore_xxx.macro
(with xxx = l1ctt, l2ctt, stt, fps or dfe)
```

Be in the habit of checking the CTT monitoring displays as a normal part of the shift routine. Some of these windows are attached to the alarm system, as well. These displays should be checked often, especially when alarms are active, CFT creates are downloaded, and 'Fix CTT' commands are issued.

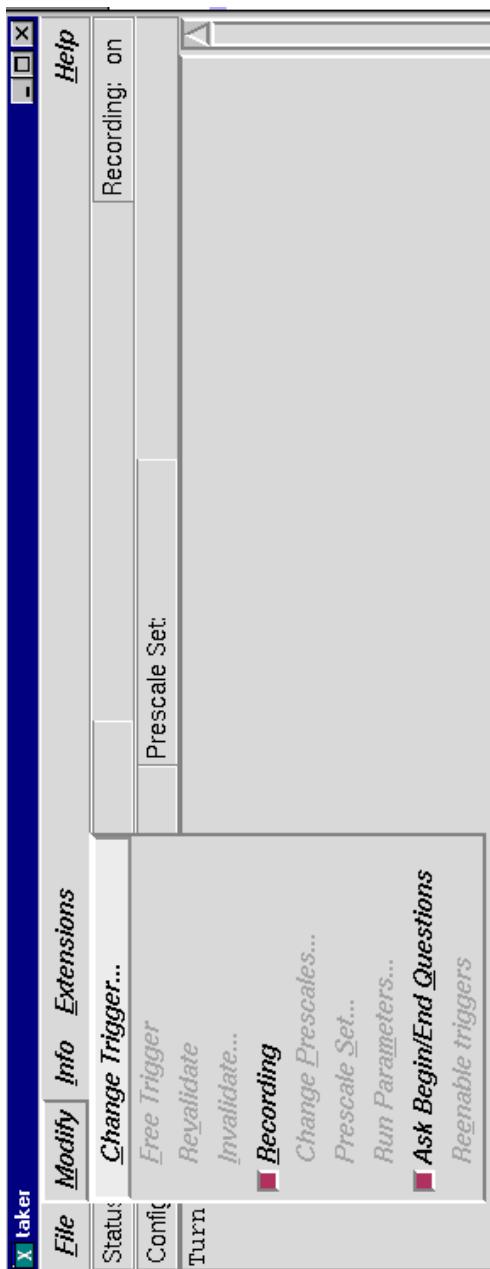


Administrative Issues

- DAQ and Captain Shifters
 - ♦ Help them; get permission from them when required.
 - ♦ Communicate effectively. **The control room crew is a unified team!**
- Do Not hesitate to call the 'on-call' expert.
 - ♦ On-call expert will carry pager with him/her during their scheduled time. Call 'CFT' pager for CFT problems or 'CTT' pager for CTT issues. If there's no reply in ~10 minutes, call the other expert's pager.
 - ♦ See black CFT+PS binder for 'CALL List' or talk to shift captain for appropriate phone numbers if both pagers fail.
- M. Tomoto: schedule new people to take 2 shifts with someone experienced
- M. Tomoto: likes to schedule in lumps of at least 3 days.
- Hopefully 3-4 shifts a month or even ~6 shifts every other month. **If possible, day shifts, followed by evenings, followed by owls...**
- The Logbook can help you manage your shift. Fill out the various forms at the appropriate times during your shift, starting with the 'Beginning of Shift Checklist' and ending with the 'Shift Summary'

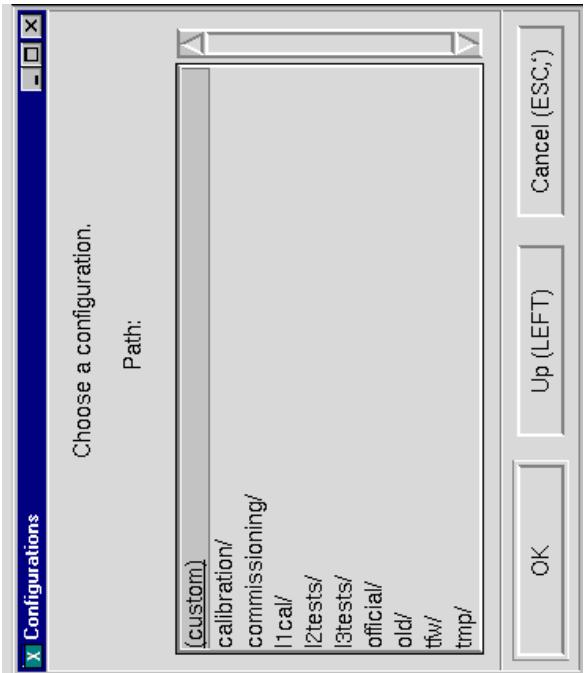


Taker



To launch taker, type:

```
setup d0online
start_daq_taker
```



Hex #	Name	Dec #
0x50	cftax	80
0x51	cftst	81
0x52	cps	82
0x53	fps	83

1. Go to: Modify → Change Trigger

2. If sdaq run Select calibration/cft/calib-cft-0x5*-allcr-1.1
3. If pdaq run Select commissioning/tracking/pulser-<Cr Name>-1.1
4. Press start button.

5. When finished, good practice to Modify → Free Trigger.



SDAQ Running (cont.): ioc login

The image shows three separate terminal windows, each with a brown title bar and a white text area. Each window has a red arrow pointing from its title bar towards the text area.

- Title Bar:** > telnet t-d0-mch2 2017
Text Area: loc login - Crate x51:
> telnet t-d0-mch2 2017 <enter>
- Title Bar:** > telnet t-d0-mch2 2018
Text Area: loc login - Crate x52:
> telnet t-d0-mch2 2018 <enter>
- Title Bar:** > telnet t-d0-mch2 2020
Text Area: loc login - Crate x53:
> telnet t-d0-mch2 2020 <enter>

Connecting to IOC (for SDAQ):

a) For a given crate, type the appropriate syntax (telnet ...) as shown on each xterm on this slide.

b) Here: if (a) is done, one does not need the username, password –

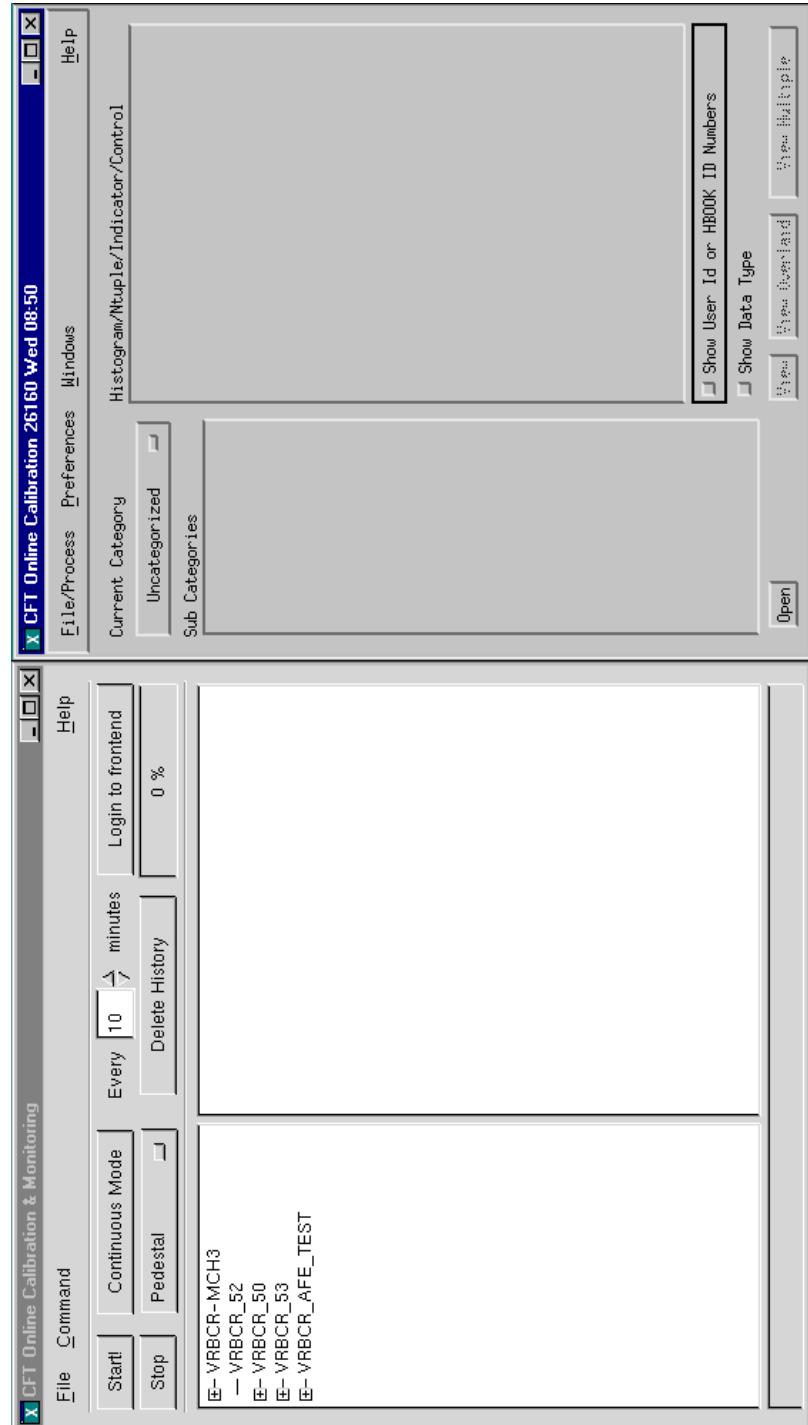
username: ioc
password: ****

- In appropriate CFTT+PS console/window, organize your SDAQ session as shown on this slide.
- Note: for a particular crate, to reboot the ioc, press in that crate's x-term window: <ctrl>-X



SDAQ Running (cont.)

- In xterm (opened in d0o108), type the following:
 - **setup d0online**
 - **cft_sdaq**
- 1. Username for account is: **cft_calib@d0onprd**; password is: *******
- 2. In 'CFT Online Calibration & Monitoring' Choose the electronics you want and the histograms you want (These are named afe*).
- 3. Press [start]
- 4. The histograms you asked for will appear in the histogram window.
- 5. To clear histogram history: highlight histo-name, click [Delete History].





Archiver

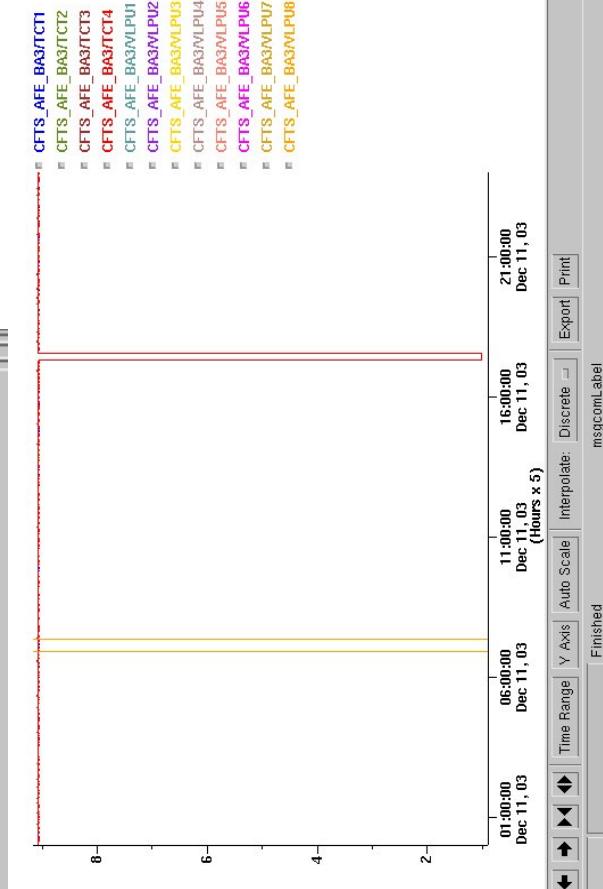
Name Pattern Wildcard

Resulting Channels

- CFTS_AFE_BA3/TCPV6
- CFTS_AFE_BA3/TCPV7
- CFTS_AFE_BA3/TCPSP1
- CFTS_AFE_BA3/TCPSP2
- CFTS_AFE_BA3/TCPSP3
- CFTS_AFE_BA3/TCPSP4
- CFTS_AFE_BA3/TCPSP5
- CFTS_AFE_BA3/TCPSP6
- CFTS_AFE_BA3/TCPSP7
- CFTS_AFE_BA3/TCPSP8
- CFTS_AFE_BA3/TCT1
- CFTS_AFE_BA3/TCT2
- CFTS_AFE_BA3/TCT3
- CFTS_AFE_BA3/TCT4
- CFTS_AFE_BA3/TCT5
- CFTS_AFE_BA3/TCT6
- CFTS_AFE_BA3/TCT7
- CFTS_AFE_BA3/TCT8
- CFTS_AFE_BA3/VLP11
- CFTS_AFE_BA3/VLP12
- CFTS_AFE_BA3/VLP13
- CFTS_AFE_BA3/VLP14
- CFTS_AFE_BA3/VLP15
- CFTS_AFE_BA3/VLP16
- CFTS_AFE_BA3/VLP17
- CFTS_AFE_BA3/VLP18
- CFTS_AFE_BA3/VLPU1
- CFTS_AFE_BA3/VLPU2
- CFTS_AFE_BA3/VLPU3
- CFTS_AFE_BA3/VLPU4
- CFTS_AFE_BA3/VLPUS
- CFTS_AFE_BA3/VLPU6
- CFTS_AFE_BA3/VLPU7
- CFTS_AFE_BA3/VLPU8

Default Timespan | Send to Graph | Quit

73 matching signals



(choose latest dir file from list)

➤ Xarr.py dir.####-####



Electronic Logbook Reference Sheet

a) To make an entry, do the following:

1. setup d0online
2. start_daq logbook
 1. Choose Detector Shift and then CFT ->CFT Log
 2. Left-mouse-click on the 'Text' button (far right side of logbook) and drag to the CFT Log page and you will see the attached image.
 3. Make Entry where 'insert text here' is.
 4. Save entry:
 1. Right click on the red heading.
 2. Choose 'Archive All non-archived entries'

b) To read previous entries from web-browsers:

1. Go to <http://www-d0ol.fnal.gov/>
2. Choose Logbook (upper left corner)
3. On the new page at the top are options.
 1. Choose Keyword [CFT]
 2. Choose number of hours and click [to present].
or choose [hours of interest] and press [Search from to].

c) To paste a captured image (say filename.jpg) into log book:

1. start the next text entry or position the cursor in the window in which you want the image to be inserted.
2. Press F9 or go to Insert menu item Click on Image -> From File
3. Window appears; choose either [Browse] or Type in the window:
`/home/d0cft/filename.jpg <press Enter>`