

Hall A & C Counting House Tips and Tricks

Brad Sawatzky

Basic System Layout

Hall A Counting House Systems

DAQ

adaq1
12 cores Xeon E5645

5.5 TB
RAID-6

adaq2
12 cores Xeon E5645

5.5 TB
RAID-6

compton
16 cores Xeon E5620

19 TB
RAID-6

Online Analysis

hamoller
4 cores Xeon E5410

aonl1
32 cores Xeon E5-2650v2

aonl2
32 cores Xeon E5-2650v2

aonl3
32 cores Xeon E5-2650v2

aonl4
32 cores Xeon E5-2650v2

1 TB
each

Servers

chafs
16-core Xeon
E5620 (2011)

19 TB
RAID-6

adaqfs
8-core Xeon
E5310 (2006)

1.7 TB
RAID-5

Blue: RHEL6, 64 bit

Red: RHEL5, 32 bit (Legacy)

Networking:
Infiniband
4xSDR=8 Gbps

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1 TB
each

Offline Expert Machines
“Back Room”

Servers

chafs
16-core Xeon
E5620 (2011)

19 TB
RAID-6

adaqfs
8-core Xeon
E5310 (2006)

1.7 TB
RAID-5

Shift Crew Machines “Front Room”

adaq1
DAQ

adaq2
DAQ

hacweb7
EPICS

hapc1/hapc2
Scalers / HV

poltarac
Target Control

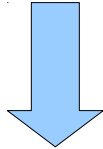
Blue: RHEL6, 64 bit

Red: RHEL5, 32 bit (Legacy)

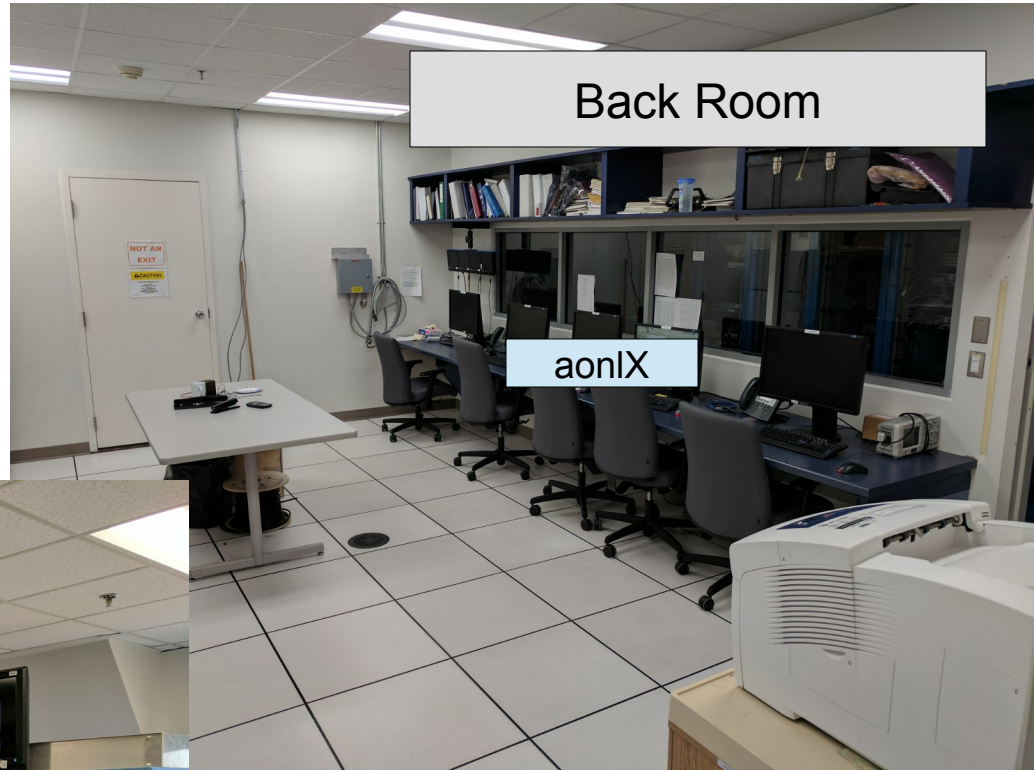
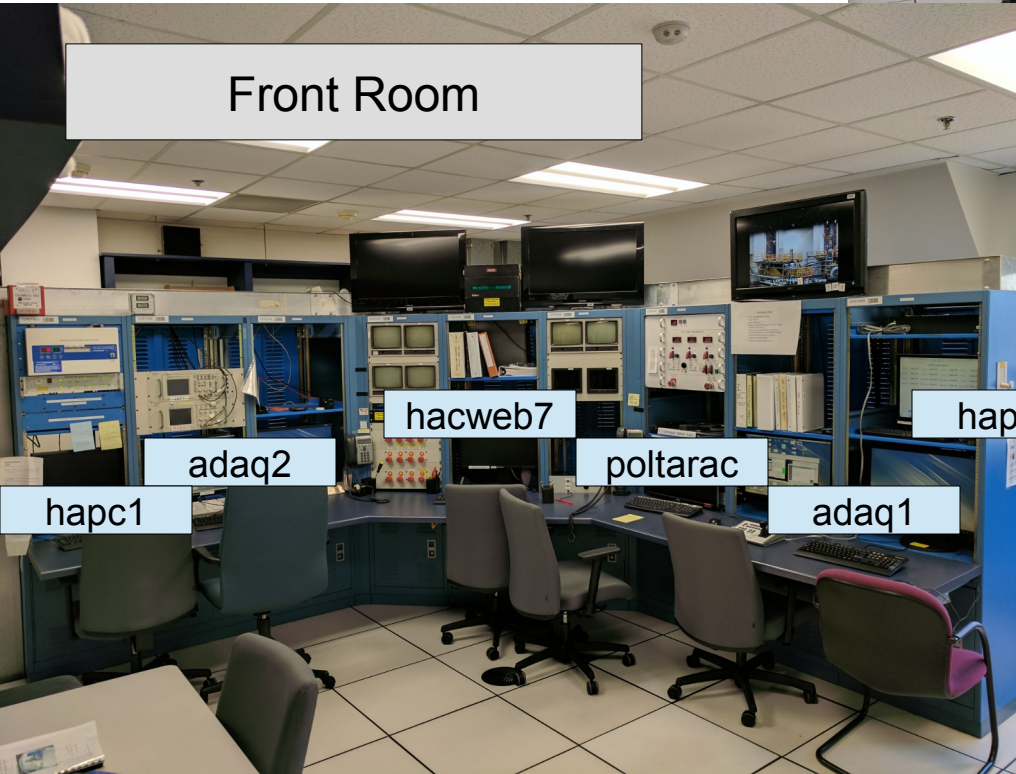
Networking:
Infiniband
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Hall A Counting House Consoles

Shift Crew Here
ONLY DAQ and monitoring
programs should run
on adaqX machines



Front Room



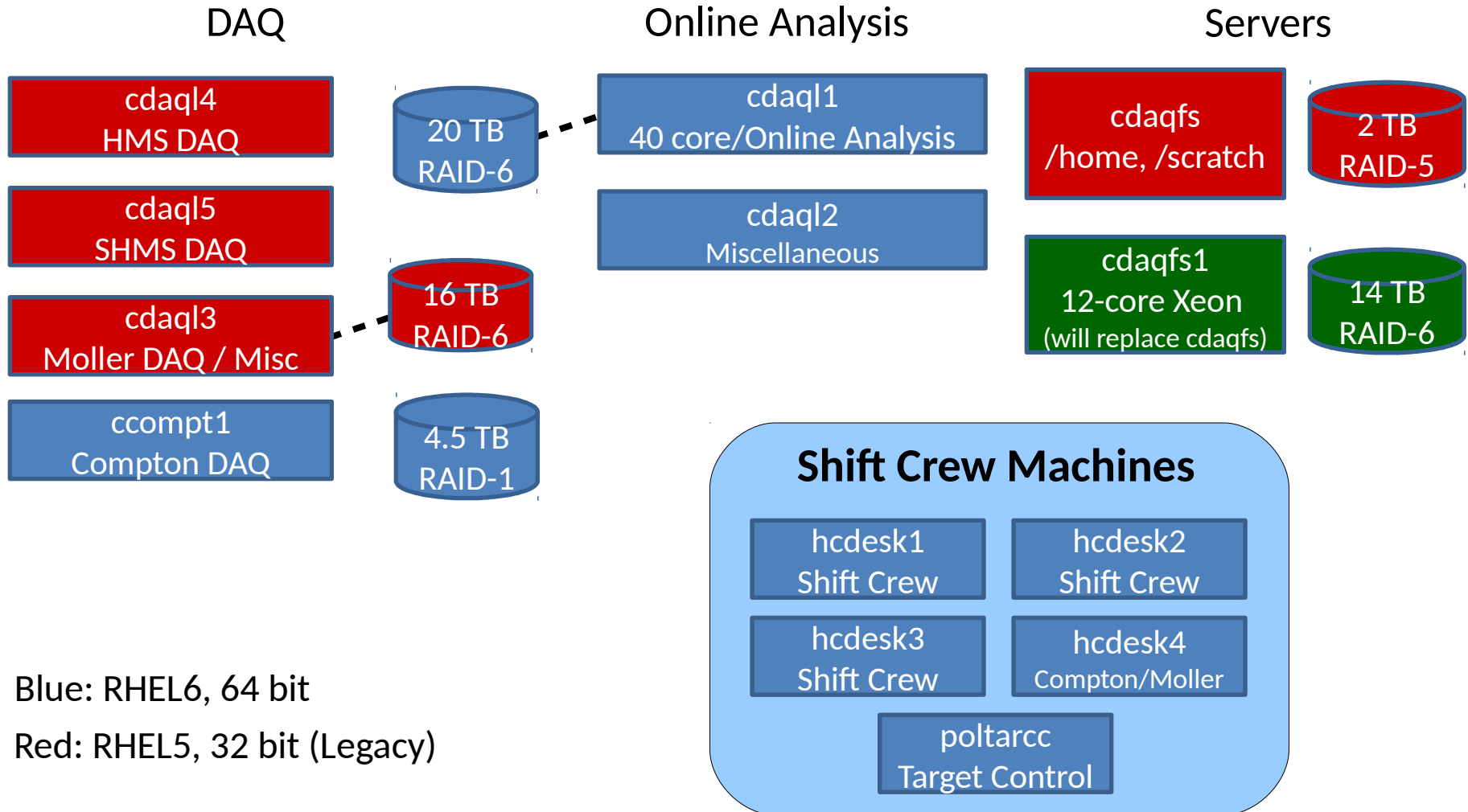
Back Room

aonIX



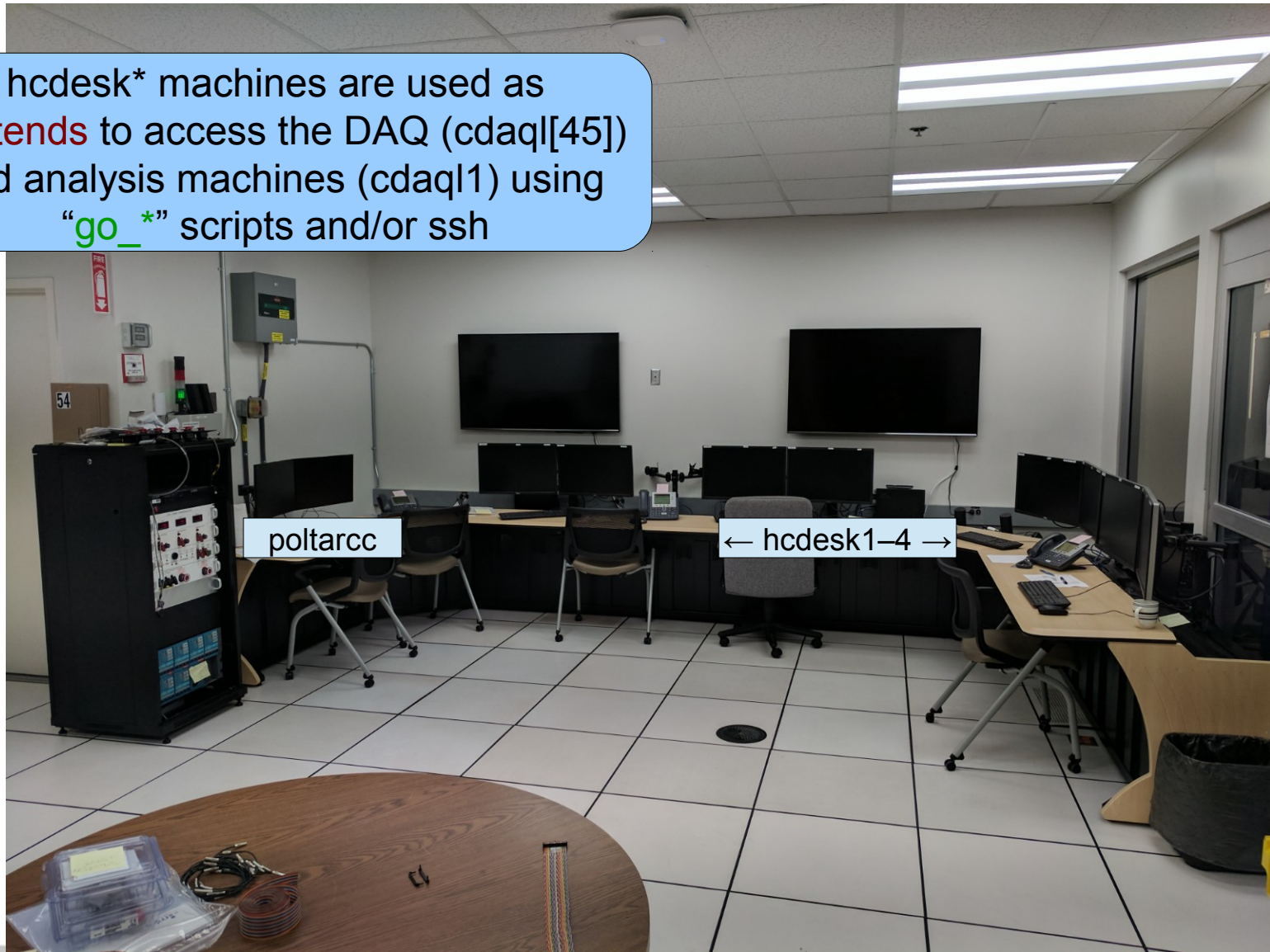
Offline Experts Here
All analysis should be done
on **a-onl@aonIX** machines

Hall C Counting House Systems



Hall C Counting House Consoles

hcdesk* machines are used as **frontends** to access the DAQ (cdaq[45]) and analysis machines (cdaq1) using “go_” scripts and/or ssh



Hall Computing Do's and Don'ts!



Rules to live by so your colleagues
don't curse your name

Donny Don't!

- **Don't** copy or write large files to any “home” directory. This includes
 - CODA files
 - ROOT files
 - tar or zip archives
- When these shared filesystems fill, *many things break*
 - processes fail with corrupt output (not just yours!)
 - machines may require rebooting (disruptive!)
 - DAQ can die!
- **Do use** destinations like:
 - /chafs/work*, /chafs2/work*
 - /net/cdaq/*
 - Use symlinks in local dirs
- **Do use** the tape silo:
 - /mss/cache/hallX/...



Donny Don't!

- **Don't** change global config files in common accounts (**adaq**, **cdaq**, **a-onl**, **cvxwrks**, **coda**, *etc*)
 - » ie .bashrc, .cshrc
- **Don't** change environment variables (*ie.* `'setenv ...'`)
- **Don't** edit or save files in the global replay directories
- **Don't** run analysis on the DAQ machines
 - All can have unexpected, and difficult to debug impacts on processes running behind the scenes



- **Do use** the appropriate machines and accounts
- **Do use** the JLab Farm:
 - » See next talk and/or
 - » Lunch seminar Wed

Donny Don't!

- **Don't** use buggy/untested code in production environments

→ If your code is:

- » generating enormous 'log' files
- » generating core.NNNN dumps
- » littering hv.1.NNNN.tmp files
- » pegging a core at 100% without good reason
- » spewing warnings / debug info

→ *Then it needs fixing before the experiment*

- **Don't** ignore warning in your replay scripts

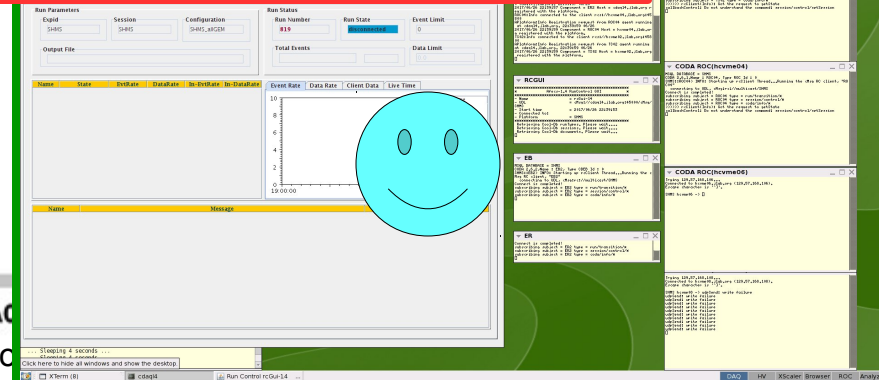
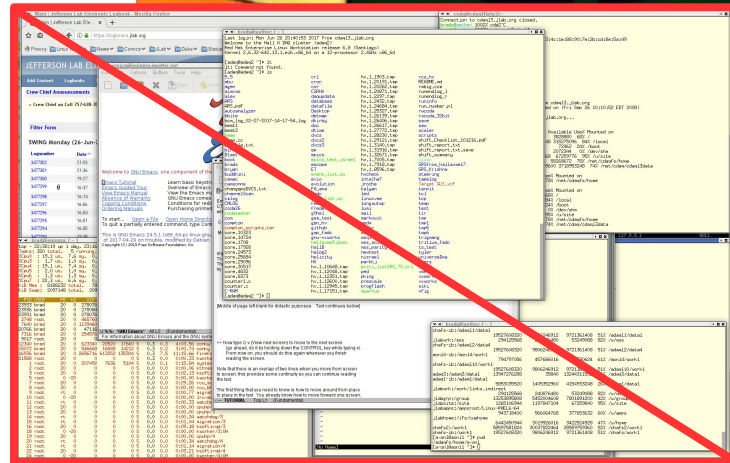
→ **NEVER** disable/hide warnings



- We've lost way too many beam hours (\$\$\$ + data) to such problems.
- Poor saps have to come in at crazy hours to fix things, and hassle folks to clean up.
→ Have mercy on us :-)

Donny Don't!

- Remember the Hall Computers are shared machines
 - **Don't** clutter CH screens with 100s of windows
 - **Don't** shuffle windows around on Shift Crew Machines
 - **Clean up** after yourselves
 - » Copy to tape, and/or remove obsolete files
 - » ***NEVER** move or touch CODA data files though*
 - talk to Hall expert



Online Help is Available

File Edit View History Bookmarks Tools Help

12 GeV DVCS/GMp Oc... x +

https://hallaweb.jlab.org/wiki/index.php/12_GeV_DVCS/GMp_October_2014_r

BTA | HALOG | ELOG | Hall A | Hall A Wiki | Tech On-Call | Fall 2014 Run | DVCS - Hall A Wiki | Gmp - Hall A Wiki

page discussion view source history

12 GeV DVCS/GMp October 2014 running

Important information

General instructions for shift takers

Other useful links

- RC run plan
- How to HRS / DVCS (Detailed documentation and troubleshooting)
- Gmp wiki
- DVCS 12 GeV Wiki
- Main Hall A wiki
- HALog
- December 2014 BPM calibration

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Jefferson Lab

Thomas Jefferson Hall A & C So

Default web page on CH computers links to "How-tos" and pointers on Shift Crew Duties

Information for Shift Takers

Counting house: 5503, 6666 & 6000 | Run coordinator: 270-8916 | MCC: 7046 & 7047 & 7048 | Crew chief: 7045 | Guard house: 85

Before the start of your shift read and understand the [Safety Documentation](#) for this experiment.

- You must then sign in the Yellow Binder in the Hall C Counting House!**

Detailed instructions are available on the [How-to](#) page. If you encounter problems, first look at those instructions for assistance.

Spring 2017 Commissioning Plans

- KPP Run Plan
- Commissioning_Plan_2017
- RC daily meetings and daily runplan
- Experts on call

Your Responsibilities

Shift Leader

- Communicate clearly and effectively with shift crews and MCC (7047), and log any status information to the [HcLOG](#)
- Maintain and update the **Shift Summary** detailing the events which occur while on shift
 - This is done by starting the summary as a log entry titled "X Shift Summary" where X = Day, Swing, Owl
 - Save & edit** the summary after **ANY** event of interest occurs
 - This provides the readers with an up-to-date play by play of the current shift
 - See example: <https://logbooks.jlab.org/entry/3402742>
- Keep track of [beam time accounting](#)
- Consult the [daily run plans](#) and communicate with Run Coordinator whenever problems happen that cannot be solved by shift workers.
- Maintain data taking quality and an efficient use of beam time.
- Follow the directives in the [COO](#) and associated [Safety Documentation](#).
- Log the following in a shift summary in the [Hall C Logbook](#):
 - run list (describing the goal of this run: eg production on LH2, BCM calibration...) and report main statistic numbers
 - any major events, including accesses

Target Operator

- Watch the target, see [Target Info](#)
- Assist the shift leader and third person with their duties

Third person

- Start and stop the DAQ. Record the purpose for every single run in the "Run list" binders. Read [fixme](#) to create more blank forms.
- Online replay of **all** production runs (twice), as described in [Analysis How-to](#): first replay the first 50 k events, check online plots (see next bullet), then run a full replay.
- Compare replay histograms with the sample ones and report to shift leader any unexplained differences. Hclog them.
- Fill shift checklist once per shift (for guidance, please see the checklist how-to). [fixme go here to find blank copies of the shift check list](#) and the shift check list how to
- The shift leader can help!

JSA

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Default web page on CH computers links to "How-tos" and pointers on Shift Crew Duties

- These are editable Wiki's

→ If you see an error, please update it!

→ If you don't, who will?

page discussion view source history

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- The shift leader will see the list.

Logbook Tips

- Always use concise “Subject”
 - » No log entries titled “problem” please...
- Make clear entries that don't rely on being there to make sense
 - » We need to understand the entries months/years later
- Clean up the “Re: Follow-up: Follow-up: Re: Follow-up: ...” garbage
 - » it is just noise
- Manually link to relevant older entries
- Use Tags fields
 - » DAQ, Analysis, Techs, ...
- HALOG, HCLOG are web based:
 - <https://logbooks.jlab.org/book/halog>
 - <https://logbooks.jlab.org/book/hclog>
- On CH computers, can also make entries via standalone tool:
 - » halog / hclog
- Simpler snapshots!

The screenshot shows the 'Message Center' window for 'HCLOG! (v. HC1.8.0)'. It features a 'Logbooks' tab and a 'HCLOG' header. Below the header are input fields for 'Date' (06-26-17), 'Time' (22:54), 'User' (a redacted field), and 'Follows up Entry #' (an empty field). A large 'Log Entry' text area is present. Below this are fields for 'Subject' (a redacted field), 'Tags' (containing 'DAQ,Readme'), and 'Email' (a redacted field). At the bottom are buttons for 'Make Entry', 'Clear Entry', 'Add Attachment', and 'Quit'.

Logbook Tips

- HALOG, HCLOG are web based:

→ <https://logbooks.jlab.org/book/halog>
→ <https://logbooks.jlab.org/book/hclog>

- Help is worth reading

- Useful 'tricks'

→ Use UPPER-CASE
boolean logic in search

» ie. AND *not* and

→ Display Settings
Hide Autologs

→ Useful Links

JEFFERSON LAB ELECTRONIC LOGBOOK

Logged in as brads (Logout)

Add content Logbooks Tags Useful Links Preferences Help/About

Crew Chief Announcements

Crew Chief on Call 757-630-7050

HCLOG

Filter Entries

DAY Friday (23-Jun-2017)

Lognumber	Date	Author	Title
3477165	14:47	ethanb	Follow-up Re: Chamber gas updates -- gas system back on

SWING Wednesday (21-Jun-2017)

Lognumber	Date	Author	Title
3476902	22:17	brads	Chamber gas updates -- gas system back on

SWING Tuesday (20-Jun-2017)

Lognumber	Date	Author	Title
3476684	15:03	beaufait	Follow-up Re: Follow-up Re: Chamber gas interlock problem

DAY Friday (16-Jun-2017)

Lognumber	Date	Author	Title
3476164	14:50	beaufait	Follow-up Re: Chamber gas interlock problem
3476105	09:02	pooser	Follow-up Re: GEM SRS DAQ standalone latency scan
3476104	08:56	pooser	Follow-up Re: Latency scan for GEM SRS DAQ in integrated Hall C system

OWL Friday (16-Jun-2017)

Lognumber	Date	Author	Title
3476094	01:05	latif	Latency scan for GEM SRS DAQ in integrated Hall C system
3476093	00:56	latif	GEM SRS DAQ standalone latency scan

SWING Thursday (15-Jun-2017)

Lognumber	Date	Author	Title
3476028	16:15	ethanb	HMS Quadrupoles

SWING Wednesday (14-Jun-2017)

Lognumber	Date	Author	Title
3475920	15:02	brads	Chamber gas interlock problem

DAY Wednesday (14-Jun-2017)

Date Picker

June 2017

Su	Mo	Tu	We	Th	Fr	Sa
					1	2
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

Date Range

Display Settings

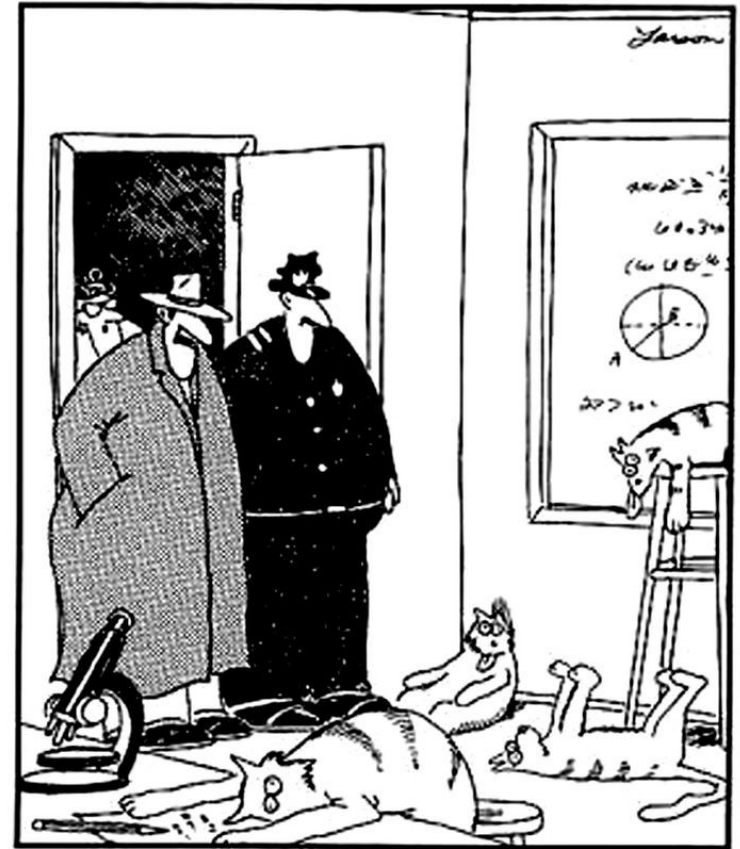
Autorefresh

Useful Links

- Hall C Shift Instructions
- Hall C Wiki
- Access Keys
- ATLAS
- CEBAF Status Information
- Hall C EPICS archive
- Hall C Run Entries -- End
- Hall C Run Entries -- Start
- Hall C Screens
- Hall C Target (Hclog, Target tag)
- Hall C Target (Target log, Hall C tag)
- Hall C Tasklist (HCList)
- Old Hall C Logbook (pre-2014)
- RF Dashboard
- Tech Notes
- White Board (OPS)

And, Most Importantly

- If you see something you don't understand...
 - Ask someone
 - Make a log entry
 - Dig in and beat on the problem until it makes sense to *you*
 - » You're scientists – understanding weirdness is literally our business!



"Notice all the computations, theoretical scribbles, and lab equipment, Norm. ...
Yes, curiosity killed these cats."