

# Controls SW Group Meeting

May 23, 2024

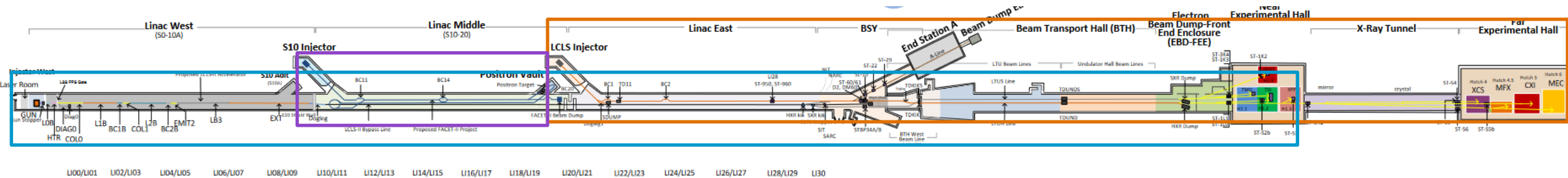
## Agenda

1. Machine Status
2. Upcoming Schedule
3. Controls Housekeeping

T. Summers

# State of the Accelerators

- **LCLS-SC** – Running through SXR for commissioning and tuning – working on XLEAP, WS, BLEN increasing rate/power. Cryoplant doing 2K pumpdown today, completed a warmup to 40K and fast cooldown to 4K during PAMM.
- **FACET** – Tuning and setting up 2-bunch during the day, running some nights to users.
- **LCLS-Cu/NC** – Steady user program
- **SPEAR** – User program.
- **UED** – User program resumes Monday May 28
- **NLCTA** - Startup scheduled tentatively for Monday May 20





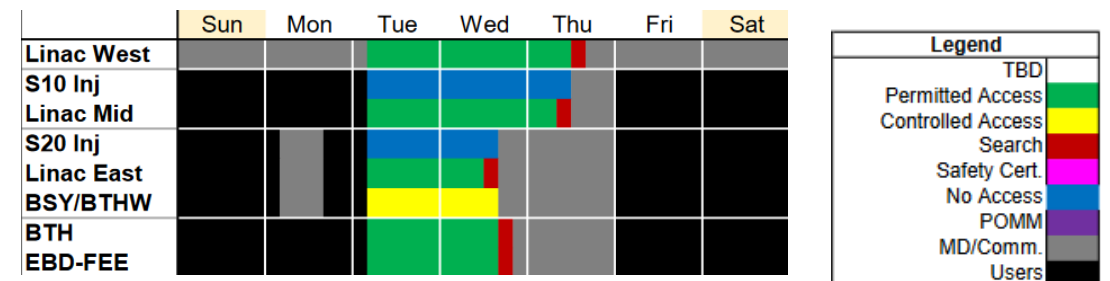
# Upcoming downtime periods

## PAMM wrapping up – please close your jobs ASAP!

- Thank you for working to update IOCs to RHEL7!
  - (Wed) LCLS: 52% to 70% this PAMM  
113 IOCs left to upgrade (267 done)
  - FACET: 47% to 55%  
35 IOCs left to upgrade (43 done)
  - TESTFAC: 54%  
53 IOCs left to update (63)
- Jobs for next PAMM due TUESDAY NOON since Monday is a holiday.
- Summer downtime planning is well underway, jobs should be getting prepared and submitted to the bucket as soon as possible to help with scheduling – [deadline Jun 14<sup>th</sup>](#).

Edit	Start Date ↓	End Date	Program	Machine Status	Description
808	07/05/2024	09/30/2024	SC_Linac_MD	Downtime	Linac West Summer Downtime, bucket closes 6/14 17:00
809	07/05/2024	08/21/2024	All Accelerators	Downtime	FACET & Linac East Summer Downtime, bucket closes 6/14 17:00
817	06/18/2024	06/20/2024	All Accelerators	PAMM	6/18-6/20 2024 PAMM. Bucket closes 6/10 17:00.
819	06/12/2024	06/12/2024	AOSD LCLS	POMM	6/12 LCLS NC-only POMM
816	06/04/2024	06/06/2024	All Accelerators	PAMM	6/4-6/6 2024 PAMM. Bucket closes 5/27 17:00
820	05/30/2024	05/30/2024	FACET-II	POMM	FACET-II POMM

## Typical PAMM schedule



# Summary of upcoming outages

---

- **Substation 501: June 17 - 21**
  - End station B and NLCTA
- **K10/K10B: July 15 - 19**
  - Laser rooms, FACET Trailer, S20 RF Hut, impacting klystrons, S20 tunnel radio, vacuum, LCW, BSOICS, BTMs, Fire Alarms and ODM, PPS
- **VVS-5, VVS-10, VVS-12: July 22 - 26**
- **VVS-5, VVS-10, VVS-12: July 29 - August 2**
- **Research Yard Substation – Part 1: August 7 – 14 (everywhere), Part 2: August 14-21 (part only)**
  - UND is in Part 1 only, access will continue to August 26 for recovery.
- **Master 230kV Yard, switch over to 60kV: August 8-20**
  
- **CT1201 – LCW Outage: Linac S16-S30 July 8-17, Linac S0-S15 July 18-29**

# Updated STA course 219 – impacts badge expiry date

---

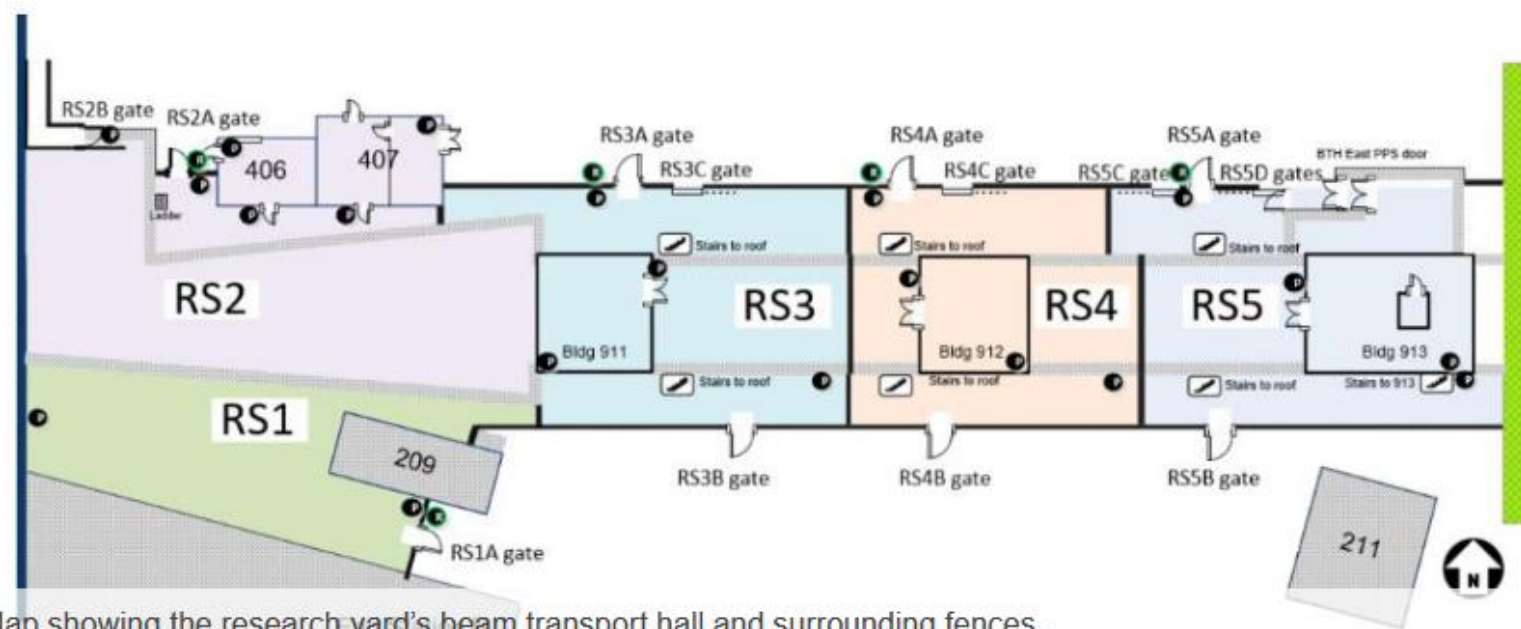
## 219 – Environment – Safety - & Health Orientation

- This is now yearly instead of every 2 years.
- If this course expires your badge will no longer work – even if the date is further in the future.
- **Reminder to check that your badge date hasn't expired! It is not checked at the gates, but Security will confiscate it and send you to the principle's office if they notice!**
- <https://intranet.slac.stanford.edu/news/2024/05/updates-%E2%80%9Cenvironmental-safety-and-health-orientation-training%E2%80%9D-module>

# Access restriction to Research Yard

## New Website and IT Business Partner

- There is now a fence restricting access near the beam transport hall impacting B911, B912, B913.
- ACR has the key, contact them if you need access. They will open it during maintenance/downtime.
- <https://intranet.slac.stanford.edu/news/2024/05/access-restricted-near-beam-transport-hall-while-linac-operation>



Map showing the research yard's beam transport hall and surrounding fences.

# New Message Logger Service and Grafana Frontend [1]

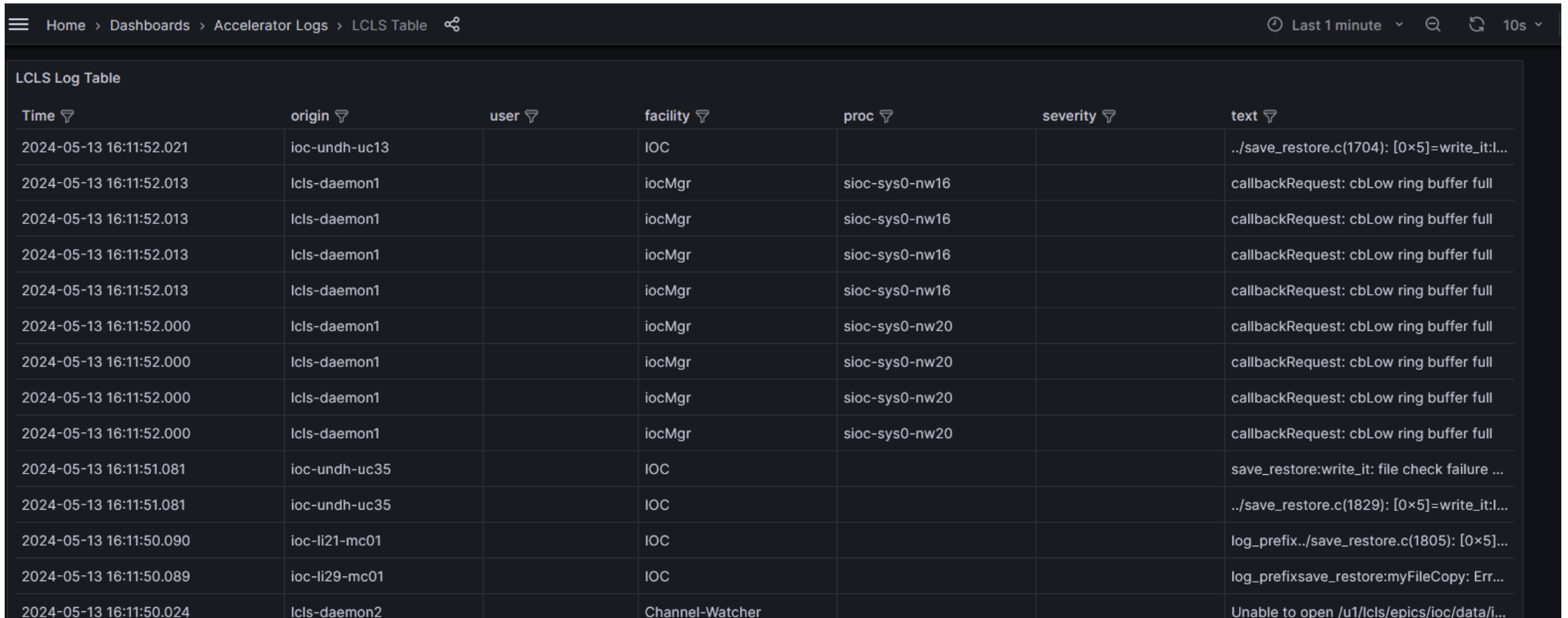
---

Project to move Message Log service off the Oracle database and Java application to a new database running on S3DF with a Grafana frontend (web browser), done by Jesse Bellister.

- Link on LCLSHOME under the original Message Log button, cleverly named “New Message Log!”. It brings you to the Accelerator Logs list. **LCLS Table** and **FACET Log Table** should look most familiar.
  - Different queries can be saved as new dashboards such as the Change Log which shows device settings getting changed. This is mostly swamped by feedbacks running but I can imagine getting clever to only show when humans change the settings.
- Goal is to switch over to this new datasource and turn off the tap to the Oracle database as soon as reasonable. Please take a look at the new interface and send your feedback, particularly if you need something in the Oracle/Java version that is not available here.
- Official documentation courtesy of Jesse is here:  
<https://confluence.slac.stanford.edu/display/ppareg/Grafana+Message+Log+Viewer>

# New Message Logger Service and Grafana Frontend [2]

LCLS table view: sorted and filter each column, set the time range (top left corner)



The screenshot shows the LCLS Log Table in Grafana. The table is sorted by time and filtered for the last 1 minute. The columns are Time, origin, user, facility, proc, severity, and text. The log entries show various messages from the IOC and LCLS daemons, including callback requests and file check failures.

Time	origin	user	facility	proc	severity	text
2024-05-13 16:11:52.021	ioc-undh-uc13		IOC			../save_restore.c(1704): [0x5]=write_it:l...
2024-05-13 16:11:52.013	lcls-daemon1		iocMgr	sioc-sys0-nw16		callbackRequest: cbLow ring buffer full
2024-05-13 16:11:52.013	lcls-daemon1		iocMgr	sioc-sys0-nw16		callbackRequest: cbLow ring buffer full
2024-05-13 16:11:52.013	lcls-daemon1		iocMgr	sioc-sys0-nw16		callbackRequest: cbLow ring buffer full
2024-05-13 16:11:52.013	lcls-daemon1		iocMgr	sioc-sys0-nw16		callbackRequest: cbLow ring buffer full
2024-05-13 16:11:52.000	lcls-daemon1		iocMgr	sioc-sys0-nw20		callbackRequest: cbLow ring buffer full
2024-05-13 16:11:52.000	lcls-daemon1		iocMgr	sioc-sys0-nw20		callbackRequest: cbLow ring buffer full
2024-05-13 16:11:52.000	lcls-daemon1		iocMgr	sioc-sys0-nw20		callbackRequest: cbLow ring buffer full
2024-05-13 16:11:52.000	lcls-daemon1		iocMgr	sioc-sys0-nw20		callbackRequest: cbLow ring buffer full
2024-05-13 16:11:51.081	ioc-undh-uc35		IOC			save_restore:write_it: file check failure ...
2024-05-13 16:11:51.081	ioc-undh-uc35		IOC			../save_restore.c(1829): [0x5]=write_it:l...
2024-05-13 16:11:50.090	ioc-li21-mc01		IOC			log_prefix../save_restore.c(1805): [0x5]...
2024-05-13 16:11:50.089	ioc-li29-mc01		IOC			log_prefixsave_restore:myFileCopy: Err...
2024-05-13 16:11:50.024	lcls-daemon2		Channel-Watcher			Unable to open /u1/lcls/epics/ioc/data/i...



# New Message Logger Service and Grafana Frontend [3]

Change log view – this requires all IOCs to set their Log Prefix so we know where the message came from.

# tag log messages with IOC name

```
epicsEnvSet("EPICS_IOC_LOG_CLIENT_INET", "${IOC}")
```



The screenshot shows a Grafana dashboard with a breadcrumb trail: Home > Dashboards > Accelerator Logs > Change Log. The main content is a table titled "Change Log" with the following columns: Time, accelerator, origin, facility, proc, and text. The table contains eight rows of log entries.

Time	accelerator	origin	facility	proc	text
2024-05-13 16:12:39	LCLS	lcls-daemon1	mps	sioc-mcc0-mp00	172.27.9.43 physics SIOC:SYS0:MP00:UNLATCHALL new=0 old=0 min=0 max=1
2024-05-13 16:12:34	LCLS	lcls-daemon1	mps	sioc-mcc0-mp00	172.27.9.43 physics SIOC:SYS0:MP00:RESET_ALL new=0 old=0 min=0 max=1
2024-05-13 16:12:19	LCLS	lcls-daemon1	mps	sioc-mcc0-mp00	172.27.9.43 physics SIOC:SYS0:MP00:UNLATCHALL new=0 old=0 min=0 max=1
2024-05-13 16:12:14	LCLS	lcls-daemon1	mps	sioc-mcc0-mp00	172.27.9.43 physics SIOC:SYS0:MP00:RESET_ALL new=0 old=0 min=0 max=1
2024-05-13 16:09:49	LCLS	lcls-daemon1	mps	sioc-mcc0-mp00	172.27.9.43 physics SIOC:SYS0:MP00:UNLATCHALL new=0 old=0 min=0 max=1
2024-05-13 16:09:44	LCLS	lcls-daemon1	mps	sioc-mcc0-mp00	172.27.9.43 physics SIOC:SYS0:MP00:RESET_ALL new=0 old=0 min=0 max=1
2024-05-13 16:09:19	LCLS	lcls-daemon1	mps	sioc-mcc0-mp00	172.27.9.43 physics SIOC:SYS0:MP00:UNLATCHALL new=0 old=0 min=0 max=1
2024-05-13 16:09:15	LCLS	lcls-daemon0	TPG	sioc-sys0-ts00	172.27.9.43 physics TPG:SYS0:1:APPLY new=1 old=1 min=1 max=1

# Making LCLSHOME useful – control system QA

---

1. Alarm colors on LCLSHOME must indicate an issue with operational impact.
2. All IOCs must be in IOCManager and the Network Alarms, and load the correct template with associated CPU, Crate, ACSW, etc.

- a) As we find issues with IOCs we need to just fix them.
- b) All IOCs should load autosave and sequence stats.

<https://github.com/slaclab/I2MpsLN/blob/master/iocBoot/common/start.cmd#L37-L38>

```
dbLoadRecords("db/devSeqCar.db" , "SIOC=${IOC_NAME}")
```

```
dbLoadRecords("db/save_restoreStatus.db", "P=${IOC_NAME}:")
```

3. We think we would like this version of lclshome / network to be IOC centric
  - a) Then someone smart can write code to give us alternate views based on json dictionary