

# Controls SW Group Meeting

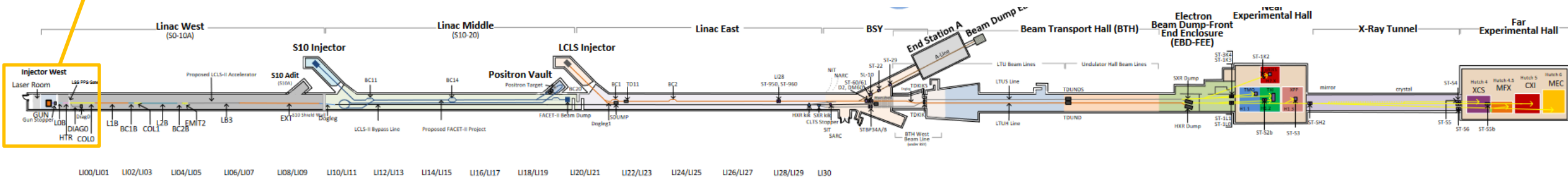
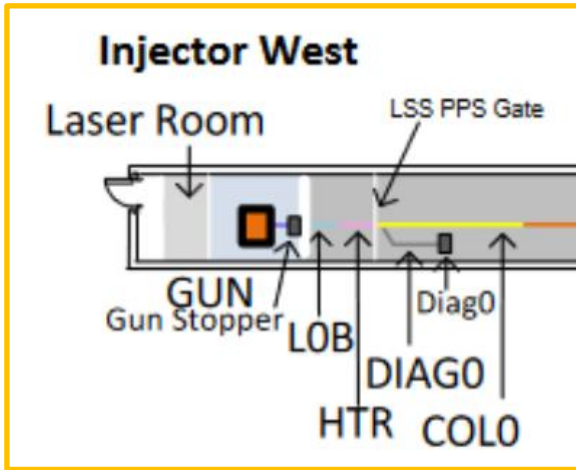
May 18th, 2023

T. Summers

# State of the Accelerators

Really close making beam again...

- Wrapping up the current PAMM today
  - K11 (S21/S22) power is back – need to restore power to crates, check NC timing
- We are turning the SC Gun on this week!
  - Friday: gun equipment restart (no beam), linac equipment turn on and measurements
  - Saturday: beam through COLO - may need timing, MPS, diagnostic (BPM, PM) support
  - Sunday: injector tuning and optimization
  - Next week: 10 Hz beam to BSY
- Next Thursday - Cu Gun restart, verify can generate 250 pC charge





# State of the Accelerators

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## Looking further...

- Short PAMM June 1-2, then resume SC Linac commissioning
  - Also run up LCLS Cu linac RF to check systems and identify any needing repair
- CATER buckets will be updated to reflect new schedule

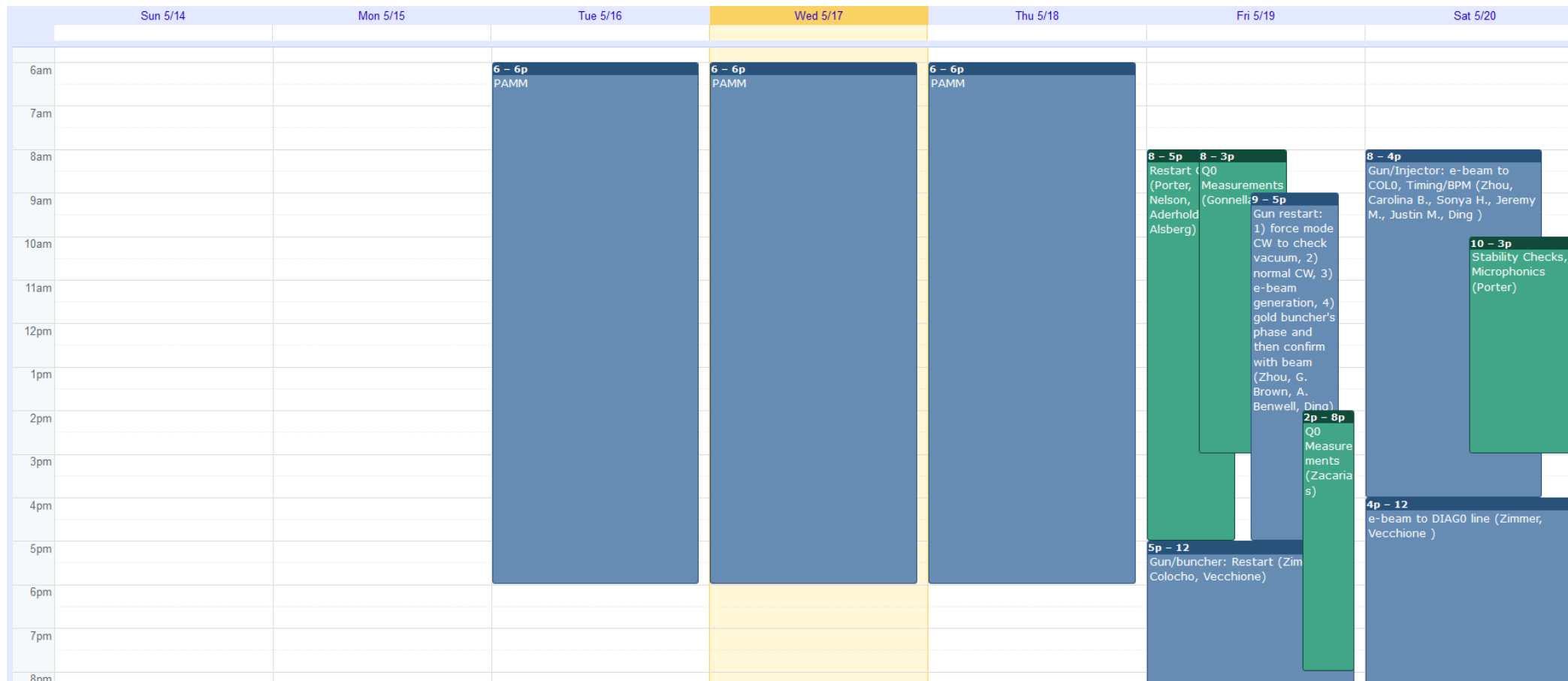
| Start Date ↓ | End Date   | Program          | Machine Status | Description                                    |
|--------------|------------|------------------|----------------|--|
| 08/01/2023   | 09/16/2023 | All Accelerators | Downtime       | 2023 Summer downtime (LCLS SC, FACET, LCLS Cu) |
| 06/01/2023   | 06/02/2023 | All Accelerators | PAMM           | 6/1 single-day PAMM                            |
| 05/16/2023   | 05/18/2023 | All Accelerators | PAMM           | 5/16-5/18 PAMM                                 |

- BIG NEWS! Machines off starting June 14, lasting about 4 weeks
  - Details in email from John Schmerge to AD yesterday
  - Time for all remaining Ksub repairs and sector power outages
  - Controls – all remaining MC already off. Need to plan for CAMAC, VME, and ATCA. Timing will likely be down/intermittent
- When we resume, it will be with Cu beam through undulators to verify that all still works
  - Then we switch over to sending SC beam through them and achieve first light! Champagne will be served.

# Looking ahead to SC Linac restart – next week

Find the schedule here:

[https://calendar.google.com/calendar/u/0/embed?height=600&wkst=1&mode=WEEK&bgcolor=%2300CCDD&ctz=America/Los\\_Angeles&title=LCLS+SC+Linac+Schedule&src=Z285ZH0MmZqOWc2OTUxcXZpcDA1cGJpMzBAZ3JvdXAuY2FsZW5kYXluZ29vZ2xlLmNvbQ&src=bnE3ajQzdHRicjY2cGU4NzFyMmVtZ2ZvcjBAZ3JvdXAuY2FsZW5kYXluZ29vZ2xlLmNvbQ&color=%237986CB&color=%23009688](https://calendar.google.com/calendar/u/0/embed?height=600&wkst=1&mode=WEEK&bgcolor=%2300CCDD&ctz=America/Los_Angeles&title=LCLS+SC+Linac+Schedule&src=Z285ZH0MmZqOWc2OTUxcXZpcDA1cGJpMzBAZ3JvdXAuY2FsZW5kYXluZ29vZ2xlLmNvbQ&src=bnE3ajQzdHRicjY2cGU4NzFyMmVtZ2ZvcjBAZ3JvdXAuY2FsZW5kYXluZ29vZ2xlLmNvbQ&color=%237986CB&color=%23009688)



Blue is injector and beam setup  
Green is SRF work

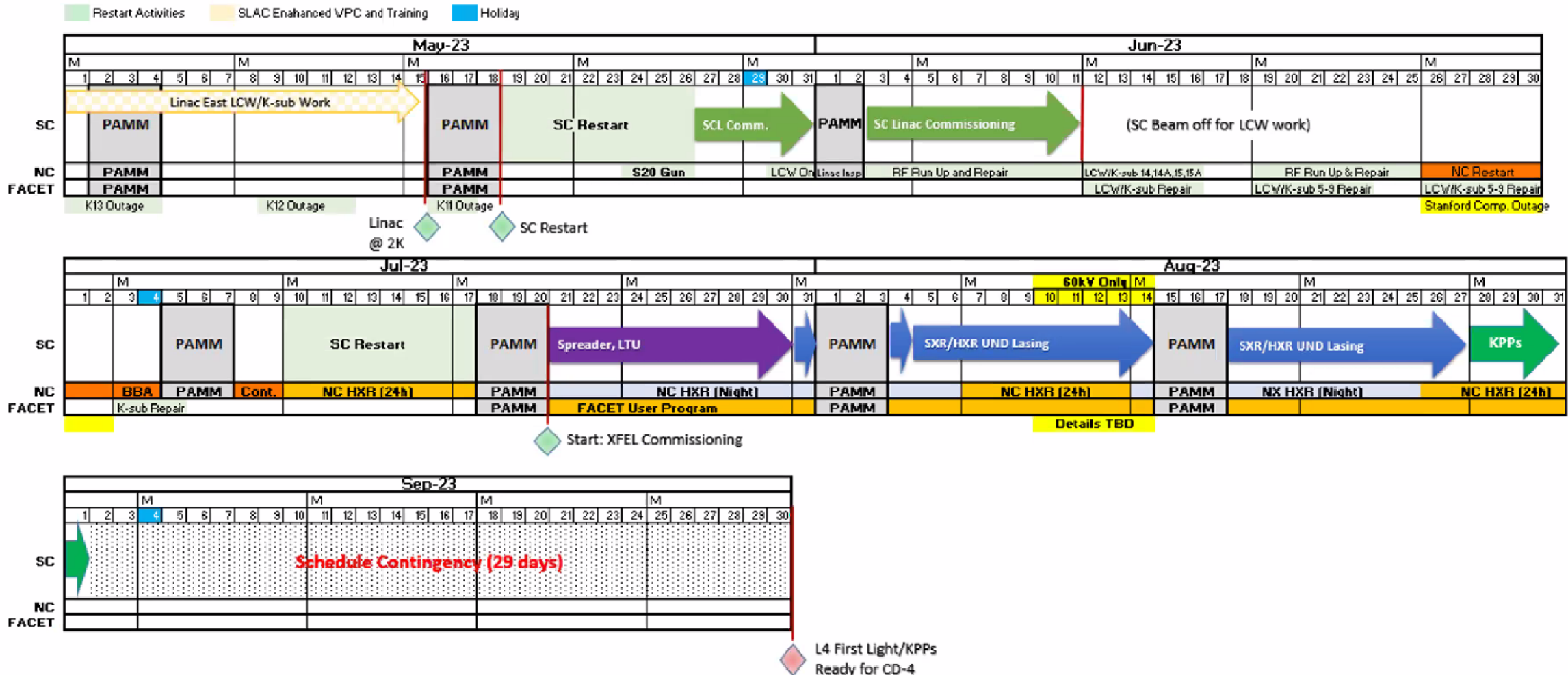
# Looking ahead to SC Linac restart – following week

Day shift is 8 am – 4 pm, Swing shift is 4 pm – 12 pm. Progress & plans discussed daily at 4:15 pm meeting

|      | Sun 5/21   | Mon 5/22   | Tue 5/23   | Wed 5/24   | Thu 5/25   | Fri 5/26   | Sat 5/27  |  |
|------|--|--|--|--|--|--|---|--|
| 8am  | <b>8 – 4p</b><br>injector emittance optimization/calibration 50pc/20pc (Osman, Zhou) | <b>8 – 4p</b><br>ACM verification with beam, burst mode (Welch, Sudar)   | <b>8 – 4p</b><br>Beam to BSY 10Hz, Timing (Colocho, Ding, Carolina B, Sonya H., Jeremy M.) | <b>8 – 4p</b><br>Beam to BSY 10Hz, Timing (Colocho, Ding, Carolina B, Sonya H., Jeremy M.) | <b>8 – 6p</b><br>BLM calibration with new gain, burst mode (Sudar, Welch, Fisher, Bohler)                | <b>8 – 4p</b><br>Beam to BSY alignment (Sudar, X. Huang, Decker) | <b>8 – 4p</b><br>Wire Scanner (Osman, Jacobson) |  |
| 9am  |  |  |  |  |  |  |   |  |
| 10am |  |  |  |  |  |  |   |  |
| 11am |  |  |  |  |  |  |   |  |
| 12pm |  |  |  |  |  |  |   |  |
| 1pm  |  |  |  |  |  |  |   |  |
| 2pm  |  |  |  |  |  |  |   |  |
| 3pm  |  |  |  |  |  |  |   |  |
| 4pm  | <b>4p – 12</b><br>Injector tuning compromise (Zhang, Halavanau, Littleton)           | <b>4p – 12</b><br>Injector BLEN: 50pc: -20, -25, -30, -40 deg buncher with sol-1 settings; (Zhang, Tang, Fisher) | <b>4p – 12</b><br>L1/L2/L3 phasing and calibration (Osman, Nelson)                         | <b>4p – 12</b><br>Beam to BSY 10Hz, RFAL/feedback, phasing (Zimmer, Nelson)                | <b>4p – 12</b><br>Beam to BSY, orbit, linac/injector collimator vs dark current (Zhang, Zhou, Littleton) | <b>4p – 12</b><br>Contingency for RFAL/feedback (Zimmer, Nelson) | <b>4p – 12</b><br>Aperture scan (Cesar, Bohler) |  |
| 5pm  |  |  |  |  |  |  |   |  |
| 6pm  |  |  |  |  |  |  |   |  |
| 7pm  |  |  |  |  |  |  |   | <b>7p – 9p</b><br>auto-steering (Zimmer) |
| 8pm  |  |  |  |  |  |  |   | <b>6p – 8p</b><br>auto-steering (Zimmer) |
| 9pm  |  |  |  |  |  |  |   |  |

# Looking ahead – big picture for following months

Lab's highest priority is meeting the KPPs!

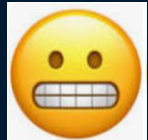


# Random reminders and things

- Reminder that returning a candidate feedback form is required for interview attendees
- **dev-rhel7** is the new **lcls-dev3**!
  - Be aware that if you build IOCs on it you're actually building on RHEL7 – it \*should\* work but there could be issues. When in doubt, stick building on RHEL6 (these run on RHEL7)
- Operations is going through the new SC linac turn-on checklist
  - Apologies for the tons of caters, in some cases the checklist will need to be updated
- We're supposed to put caters for TestFac in the 'NLCTA' division
  - This is awkward, especially for jobs spanning all facilities - sorry! Don't change any existing ones.
- Reminder from operations – put updates on work in Elog (e.g. equipment shutoffs)
  - There is a sw\_log (very lightly used) – should there be a more general 'controls' log?
- Recent environment issues have been solved by clearing junk out of .bashrc files
  - Only really need to source ENV564 now. If it looks like mine it's broken! →

```
.bashrc
# set variables identifying the chroot you work in (used in the prompt below)
if [ -z "${debian_chroot:-}" ] && [ -r /etc/debian_chroot ]; then
    debian_chroot=$(cat /etc/debian_chroot)
fi
if [ "${color_prompt:-}" = yes ]; then
    PS1='${debian_chroot:+($debian_chroot)}\[\033[01;32m\]u@h\[\033[00m\]:\[\033[01;34m\]w\[\033[00m\]}$ '
else
    PS1='${debian_chroot:+($debian_chroot)}u@h:w$ '
fi
PS1='${debian_chroot:+($debian_chroot)}\[\033[01;32m\]u@h\[\033[00m\]:\[\033[01;34m\]w\[\033[00m\]}$ '
# commonly used stuff
source /afs/slac/g/lcls/tools/script/ENV5.bash
source $TOOLS/script/use_pymd.sh
export PYMD_STYLESHEET=/afs/slac/g/lcls/tools/pymd/styleSheet/default.qss"
# To use dev's channel access address list
export EPICS_CA_ADDR_LIST=134.79.219.255 172.26.97.63"
export EPICS_PVA_ADDR_LIST=lcls-dev1 SEPICS_PVA_ADDR_LIST"
# To use mcc's channel access address list (read production data)
export EPICS_CA_ADDR_LIST=lcls-prod01:5068 lcls-prod01:5063 mcc-dmz"
export EPICS_PVA_ADDR_LIST=lcls-prod01:5068 lcls-prod01:5063 mcc-dmz"
# host-specific setups
HOSTNAME=hostname
case $HOSTNAME in
    "testfac-srv01" )
        source /afs/slac/g/acctest/tools/script/ENV5_acctest.bash
        ;;
    "mcclogin" )
        source /afs/slac/g/lcls/tools/script/ENV564.bash
        source /afs/slac/g/lcls/epics/setup/epicsenv-7.0.3.1-1.0.bash
        ;;
    "lcls-dev01" )
        source /afs/slac/g/lcls/tools/script/ENV564.bash
        source $TOOLS/AlarmConfigTop/SCRIPT/AlarmEnvSetup.bash
        source /afs/slac/g/lcls/epics/setup/epicsenv-7.0.3.1-1.0.bash
        ;;
    "aird-b50-srv01" )
        source /afs/slac/g/lcls/tools/script/ENV564.bash
        source /afs/slac/g/lcls/epics/setup/epicsenv-7.0.3.1-1.0.bash
        export JAVA_HOME=/afs/slac/g/lcls/package/java/jdk-11.0.2
        export PATH=$JAVA_HOME/bin:$PATH
        export EPICS_CA_ADDR_LIST=lcls-prod01:5068 lcls-prod01:5063 mcc-dmz"
        export EPICS_CA_ADDR_LIST=lcls-prod01:5068 lcls-prod01:5063 mcc-dmz localhost"
        ;;
    "lcls-archagg01" )
        source /afs/slac/g/lcls/epics/setup/epicsenv-7.0.3.1-1.0.bash
        # set up EPICS env
        # Update if host for different facilities
        export EPICS_CA_ADDR_LIST=lcls-prod01:5072 lcls-prod01:5073 lcls-prod01:5074 lcls-
        prod01:5075 lcls-prod01:5076 lcls-prod01:5077 lcls-prod01:5078 lcls-prod01:5079 lcls-
        prod01:5078 lcls-prod01:5071 mcc-dmz:5068"
        export EPICS_CA_REPLATER_PORT=5069
        export EPICS_CA_SERVER_PORT=5076
        export EPICS_CA_AUTO_ADDR_LIST=NO
        export EPICS_CA_CONN_TMIME=120.0"
        # Variables for PVA access. For now, this only points to lcls-daemon1
        export EPICS_PVA_ADDR_LIST=lcls-daemon1.slac.stanford.edu
        export EPICS_PVA_BROADCAST_PORT=5056
        export EPICS_CA_MAX_ARRAY_BYTES=80000000
        ;;
    *)
        echo "No particular EPICS setup defined for this node"
        ;;
esac
# some aliases
alias ls='ls --color=auto'
alias ll='ls -l'
alias la='ls -lA'
alias rat='rm -r'
alias dev3='ssh lcls-dev3'
alias mcc='ssh mcclogin'
alias aird='ssh aird-b50-srv01'
alias naims-env='source /afs/slac/g/lcls/package/naims/setup/aird-b50-srv01/demo.env'
alias EP3='source /afs/slac/g/lcls/epics/setup/epicsenv-7.0.3.1-1.0.bash'
alias qssmod='export PYMD_STYLESHEET=/u/cd/tsummers/tools/pymd/styleSheet/modern.qss'
alias qssdef='export PYMD_STYLESHEET=/u/cd/tsummers/tools/pymd/styleSheet/default.qss'
alias qssvin='export PYMD_STYLESHEET=/u/cd/tsummers/tools/pymd/styleSheet/vintage.qss'
alias jphoebus='sh /afs/slac/g/controls/development/users/jesseb/phoebus/product/
phoebus.sh -settings.settings.ini'
alias tphoebus='sh /afs/slac/g/controls/development/users/jesseb/phoebus/product/
phoebus.sh -settings.settings.Tc.ini'
alias cdphb='cd /afs/slac/g/controls/development/users/tsummers/phoebus'
alias jbene='source /afs/slac/g/controls/development/users/jesseb/pymd_sandbox/
jssm.py2 env/bin/activate'
alias jbalarm='python /afs/slac/g/controls/development/users/jesseb/screens/alarms.py'
function trash() { mv "$@" ~/.trash; }
PS1='${debian_chroot:+($debian_chroot)}\[\033[01;32m\]u@h\[\033[00m\]:\[\033[01;34m\]w\[\033[00m\]}$ '

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# Random reminders and things

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- AD Appreciation Lunch tomorrow in the main quad (hopefully you signed up)
- Matt Gibbs has declared that we're overdue for a happy hour!  
Please join us after work today at the Gourmet House in Redwood City :)
- Monday May 29<sup>th</sup> is a holiday, and so is Tuesday July 4<sup>th</sup> (but not the Monday!)



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# Special Presentation

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Carolina Bianchini Mattison

BSA and BSSS for Superconducting beam, an Engineering Guide for the Controls Software team

We'll address the following general questions:

- What is it?
- How do I install it into my app?
- How to acquire and access the data?