

CS-Studio at SNS

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July 2026

ORNL is managed by UT-Battelle, LLC for the US Department of Energy

SNS Version of CSS

- Provided in Central Control Room and at Beamlines
- For read-only usage from ORNL network (your office):

<https://controlsoftware.sns.ornl.gov> → CS-Studio → ORNL/SNS/HFIR

General Download (not for SNS/HFIR)

Nightly builds of a generic CS-Studio product (ORNL/SNS/HFIR users see below):

SNS Controls Software Tools

Software Tools

The following control system software tools are for EPICS, the Experimental Physics and Industrial Control System. Select from menu in the upper right corner for more.

CS-Studio "Phoebus" - The current version of CS-Studio. [More...](#)

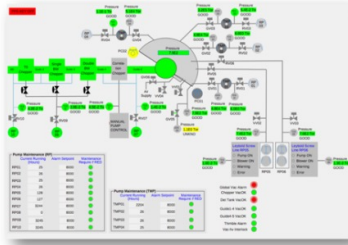
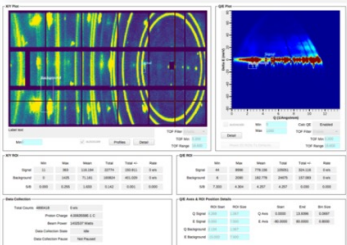
SNS Status - SNS Status information. [More...](#)

Device Support, EPICS Extensions - Support for interfacing Allen-Bradley Control Logix PLCs; a Matlab Channel Access extension etc.

Training Resources - Slides and related material used at introductions to EPICS and CS-Studio. [More...](#)

CS-Studio "RCP" - The legacy CS-Studio development based on Eclipse/RCP. SNS stopped using it in 2019. [More...](#)

EDM - Extensible Display Manager [More...](#)



ORNL/SNS/HFIR Download

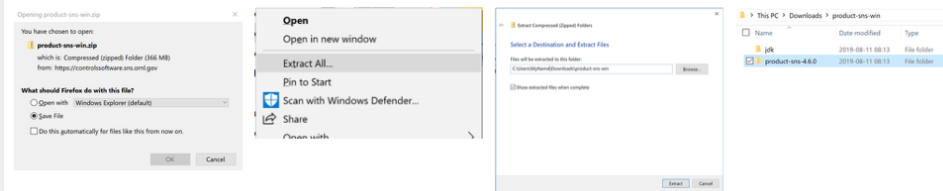
Windows Mac (Apple M2) Mac (Intel) Linux

(configured for ORNL/SNS/HFIR office or VPN, not usable outside of ORNL/SNS/HFIR networks!)

ORNL/SNS/HFIR users should download the site-specific "product-sns-*.zip". Compared to the general product for ORNL/SNS/HFIR. They also include Java, so compared to the earlier packages a separate installation of Java is not necessary.

ORNL/SNS/HFIR Windows Users

Right-click on the downloaded `product-sns-win.zip`, select "Extract All.." to unpack the ZIP file. You may also right-click on the downloaded ZIP file. The extracted content will include sub-folders `jdk` and `product-sns-{version}`. Inside the latter, double-click on `phoebus.bat` to start. Windows may open a warning because this software was not sold by Microsoft. Select "detail" and then "Run anyway".

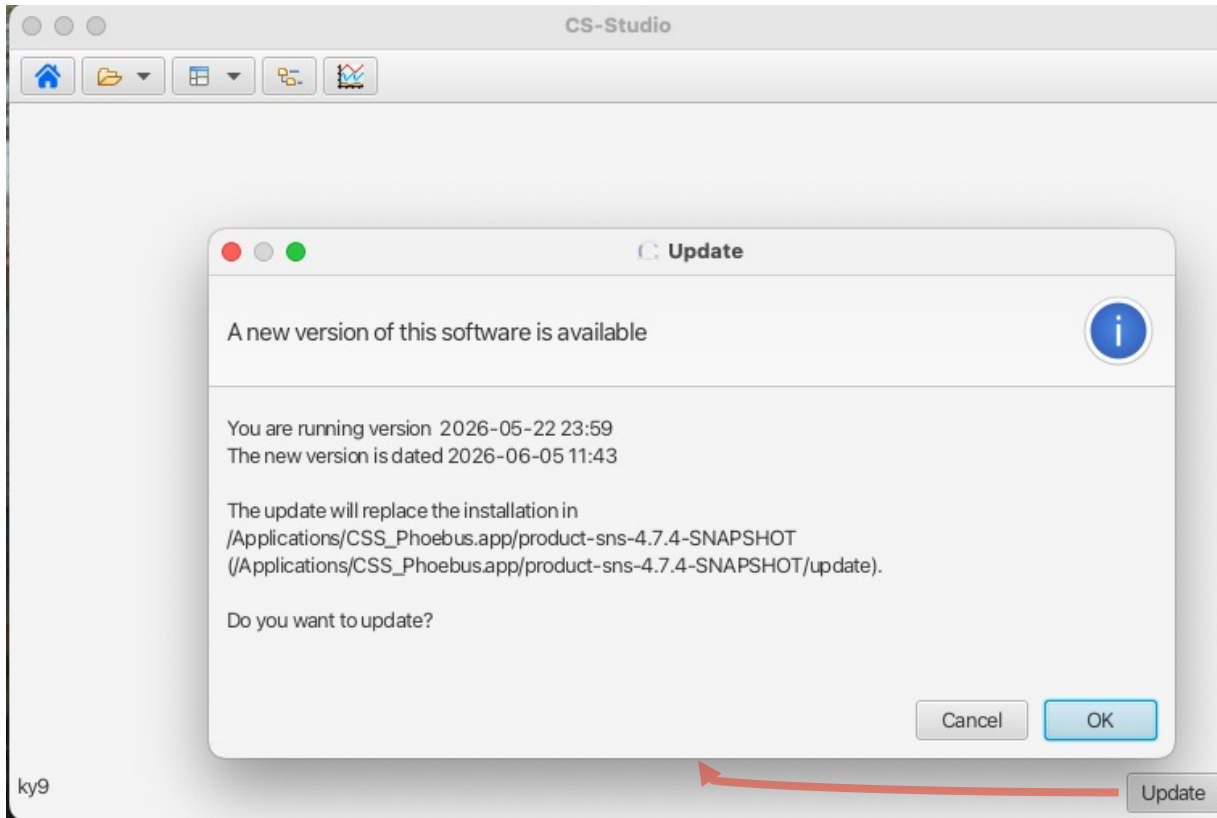


Welcome!



To get started, try the menu item File, Top Resources.

Update of office version



Offers self-update as new versions become available

There is no need to follow each of the frequent updates!

If it ain't broke...

Start with 'Home' button or 'Top Resources' drop-down

OPIs in CCR

Accelerator
Instruments
EDM (Auto-Convert)

General: CCR Overview, Remote Users
Linac: SCL Quads, SCL Phases
HEBT: HEBT Quads
CF: RID TC9361

Ring: Foil, Injection Kickers
RTBT: RTBT-Target Tuning
Target: View Screen
Mag PS: SNS Mag PS

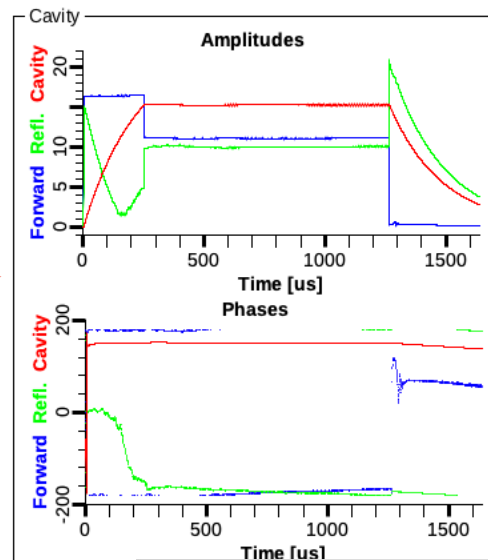
Diagnostics: Diagnostics
BPLS: BPLS
EERF: LINAC-EERF, EERF - Compact

UTCA SCL LLRF: 23d, 25a, 25b, 25c, 27a, 27b, 27c, 27d, 28a, 28b, 28c, 29a, 29b, 29c, 29d

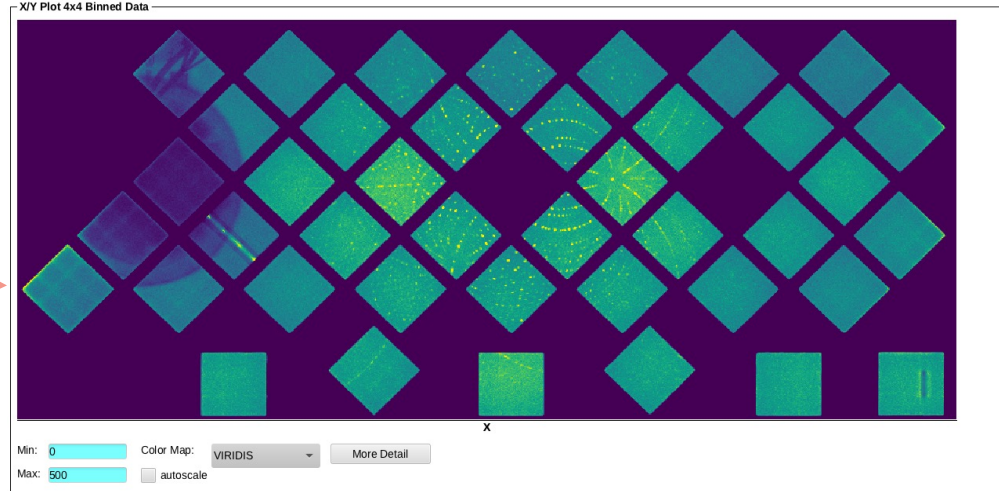
MPS: ICS MPS, ICS MPS Soft Injnk, MPS Ops
CTRLS: HW MONITORING, IOC STATUS, LLRF IOCs

Timing: STS Shadow, STS as ICS_Tim, Extr Kick Shadow, Extr Kick Voltage

SCL LLRF 23d Main



BL11B Main Detector 4x4 Binned X



Beam/Detector Status

Total Counts: 39705571	0 e/s	Data Collection
Proton Charge: 3.0815294E13 pC		Idle
Beam Power: 0.000 MW		Not Paused

ROI

	Min	Max	Mean	Total	Rate
XY Plot ROI	176	293	239.440	161622	0 e/s

Accelerator Mode: Target Power: 1383.68 kW Charge: 2.323E-5 C Energy: 1011.448 MeV Rate: 59.9 Hz

BL-1A USANS: Shutter, Run, Scan Running, Main, TO Chopper, IPPS

BL-1B NOMAD: Shutter, Run Idle, Scan Aborted, Main, TO Chopper, Choppers, Vacuum, IPPS

BL-2 BASIS: Shutter, Run, Scan Aborted, Main, TO Chopper, Vacuum, IPPS

BL-3 SNAP: Shutter, Run, Scan Finished, Main, TO Chopper, IPPS

BL-4A MRef: Shutter, Run, Scan Running, Main, Choppers, IPPS

BL-4B LRef: Shutter, Run, Scan Running, Main, Choppers, IPPS

BL-5 CNCS: Shutter, Run, Scan Running, Main, Choppers, IPPS

BL-6 EQ-SANS: Shutter, Run Idle, Scan Aborted, Main, Vacuum, Choppers, IPPS

BL-7 VULCAN: Shutter, Run, Scan Running, Main, Detector, Choppers, IPPS

BL-9 CORELLI: Shutter, Run Idle, Scan Finished, Main, Vacuum, Choppers, TO Chopper, IPPS

BL-10 VENUS: Shutter, Run Idle, Scan Finished, Main, Vacuum, Choppers, TO Chopper, IPPS

BL-11A POWGEN: Shutter, Run, Scan Running, Main, Vacuum, Choppers, TO Chopper, IPPS

BL-11B MANDI: Shutter, Run, Scan Aborted, Main, Vacuum, Choppers, IPPS

BL-12 TOPAZ: Shutter, Run, Scan Running, Main, IPPS

BL-13 FNPB: Shutter, Main, Choppers, IPPS

BL-14B HYSPEC: Shutter, Run, Scan Aborted, Main, Choppers, IPPS

BL-15 NSE: Shutter, IPPS

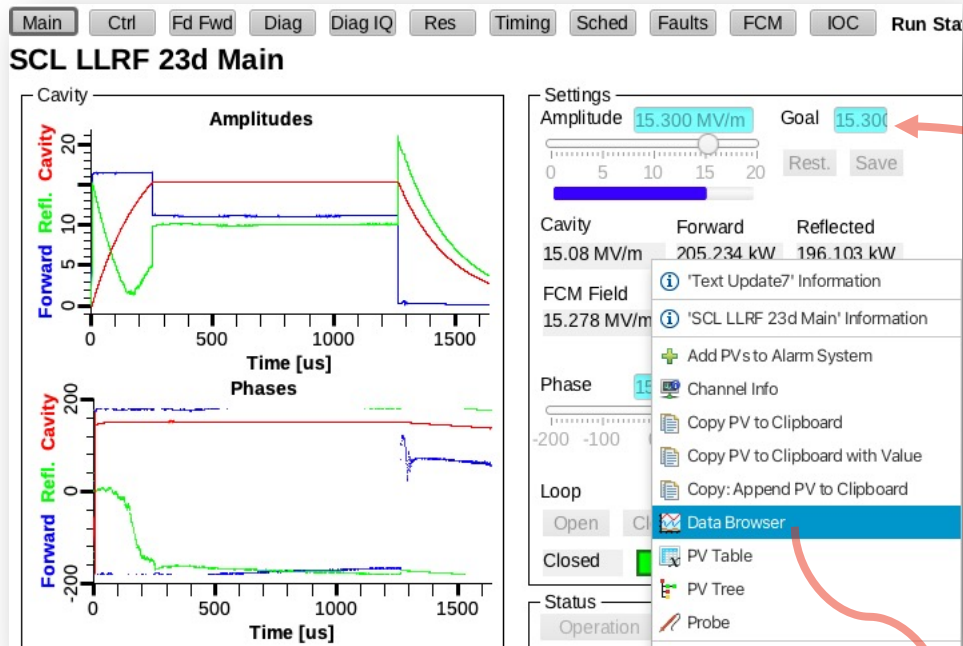
BL-16B VISION: Shutter, Run, Scan Running, Main, Vacuum, TO Chopper, IPPS

BL-17 SEQUOIA: Shutter, Run, Scan Running, Main, Vacuum, Choppers, Detector/nED, IPPS

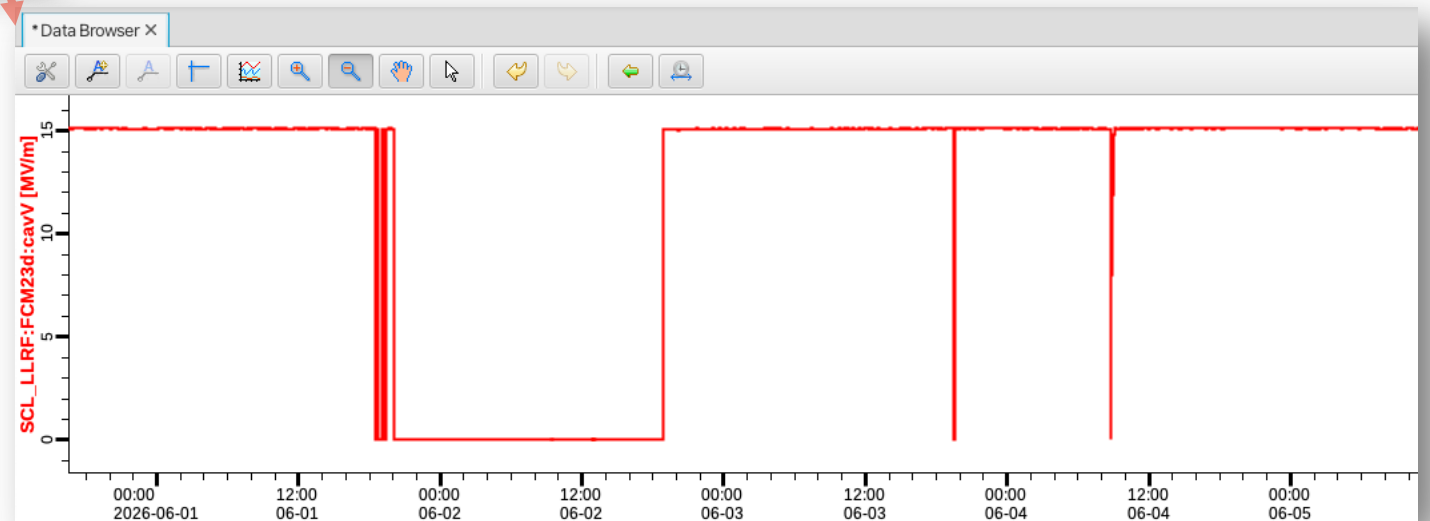
BL-18 ARCS: Shutter, Run Idle, Scan Finished, Main, Vacuum, Choppers, IPPS

Summaries: SE Cage, CMF, NCL, Gateways, ODH, Instruments Data, Archives, Vacuum

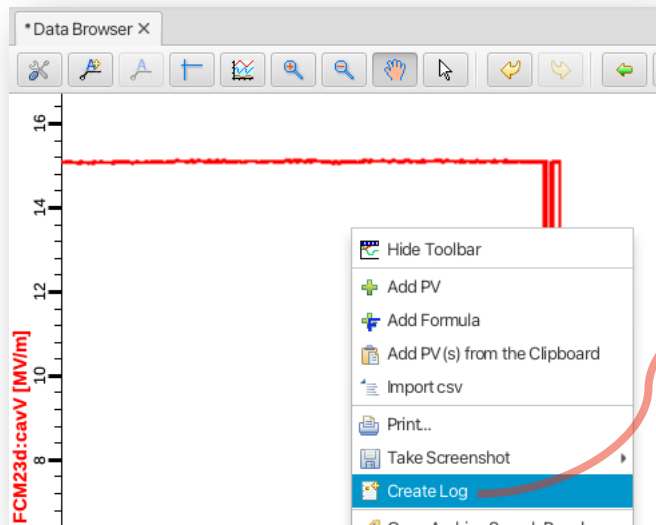
Archive Access



Note read-only controls unless we're in control room



Logbook Support



"Create Log" from

- Displays
- Data Browser
- Alarm Table (CCR)

Similar "email" option at beamlines,
but getting hard to support

The figure shows a logbook entry form. At the top, there are fields for 'User Name: ky9', 'Password: [masked]', 'Date: 2026-06-05', and 'Level: Normal'. Below these are 'Title: Test Entry', 'Logbooks: Scratch Pad', and 'Tags:'. The 'Text' field contains the entry: 'The SCL 23d amplitude looks good except when RF is turned off.' Below the text is an 'Attachments' section with tabs for 'Images', 'Files', and 'Properties'. The 'Images' tab is active, showing a plot of 'SCL_LLRF-FCM23d:cavv [MV/m]' vs time. The plot shows a red line that is mostly flat at approximately 15 MV/m but has several sharp downward spikes. A 'Remove' button is next to the plot. At the bottom of the form are 'Add Image', 'CSS Window', 'Clipboard Image', 'Cancel', and 'Submit' buttons.

Logbook	
Logbook	Title/Content
Scratch Pad 2026-06-05 12:07	Test Entry - Kay Kasemir The SCL 23d amplitude looks good except when RF is turned off. - 2026-06-05 12 -
Scratch Pad 2026-06-04 00:44	Data Browser Plot - Jody Moore See attached data browser plot - 2026-06-04 00 -

Auto-converted EDM Displays

EDM Displays

The accelerator uses EDM as the primary display tool. CS-Studio can do some extend auto-convert EDM screens.

When you push the "Start Screen" button below, it will try to auto-convert that display, open it, and then also auto-convert all sub-screens as you open them.

Auto-converted files: /Users/ky9/EDM_AUTO_CONVERT Enable

Accelerator Start Screen

Whenever an EDM display is opened, it is automatically converted. The auto-converted files are stored in a folder EDM_AUTO_CONVERT in your home directory for re-use when you open them the next time around. It is a good idea to periodically remove all files from the EDM_AUTO_CONVERT folder to re-generate them with the latest auto-conversion code. Clear

Smoke Alarms

Accelerator Status:
Ramping to 1 MW on target.
 Neutron Production

Beam Halo One Minute Avg Temps on Target:
120.2 F, 167.2 F, 120.3 F, 166.1 F

TPS Status: OK

Ext. Air Temp: 81.8 F

65 KV RFQ: OK

CCL Water Overview Page!

CCL1 Cool **CCL2 Cool** **CCL3 Cool** **CCL4 Cool** **QMCS Cool** **CCL DI**

CCL1 RCCS **CCL2 RCCS** **CCL3 RCCS** **CCL4 RCCS** **QMCS WS**

CCL RCCS Module 1 Water Skid

RF Water Return: 236.91 GPM

RF Water Supply: 234.20 GPM

Heating: 13618 kW

Mode: MAN

Speed %: 93.9

Facility Water: 5.27 degC

Facility Chilled Water Supply: 79.41 degC

Facility Chilled Water Return: 79.594 degC

Skid shutdown status: NOT SHUTDOWN

Linac LLRF Systems

FCM Status:
RF Permit: 15, 108, 123
Closed Loop: 15, 108, 123

Adaptive Feed Forward:
NC Linac: 0, 0, 0
SC Linac: 0, 0, 0
NC+SC Linac: 0, 0, 0

NC Linac:
RFQ 1: 01a, 01b, 01c
MEBT 1: 01a, 01b, 01c
MEBT 2: 01a, 01b, 01c
MEBT 3: 01a, 01b, 01c
MEBT 4: 01a, 01b, 01c

Medium beta SCL:
DTL 1: 01a, 01b, 01c
DTL 2: 01a, 01b, 01c
DTL 3: 01a, 01b, 01c

High beta SCL:
12a, 12b, 12c, 12d, 12e, 12f, 12g, 12h, 12i, 12j, 12k, 12l, 12m, 12n, 12o, 12p, 12q, 12r, 12s, 12t, 12u, 12v, 12w, 12x, 12y, 12z

SCL 08b Control:
Amplitudes: 0, 100, 200, 300, 400, 500, 1000, 1500
Phases: 0, 100, 200, 300, 400, 500, 1000, 1500

Settings:
Cav. [M/V/m] Fwd: 13.38, Ref: 53.1
FCM Field: 13.511, HOM B [W]: 8.8, Fwd-Ret [kW]: 147.3, 0.88
Cavity Field Phase: -85.15

Status:
Res. Err.: 0.08 kHz
Power: 280.35 kW
RF Load: 11.368 kW

Beam RF:
Phase Shift: 0.8 us
Rate: 60
Duty Cyc.: 7.59 %

RF Pulse Width:
1265 us

Beam Pipe:
Cryo Liquid Level: 86.99 %
Beam Pipe: 2.34 K Coupl., 5.64 K

Work on auto-converted displays is ongoing...

Web displays: Simpler, but easier to reach

EDM

<https://controlsoftware.sns.ornl.gov/wedm>

No waveforms (plots, images)!

Display Builder

<https://controlsoftware.sns.ornl.gov/dbwr>

No scripts!

