

EPICS Beamline PVs with APS-U

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June 18, 2024

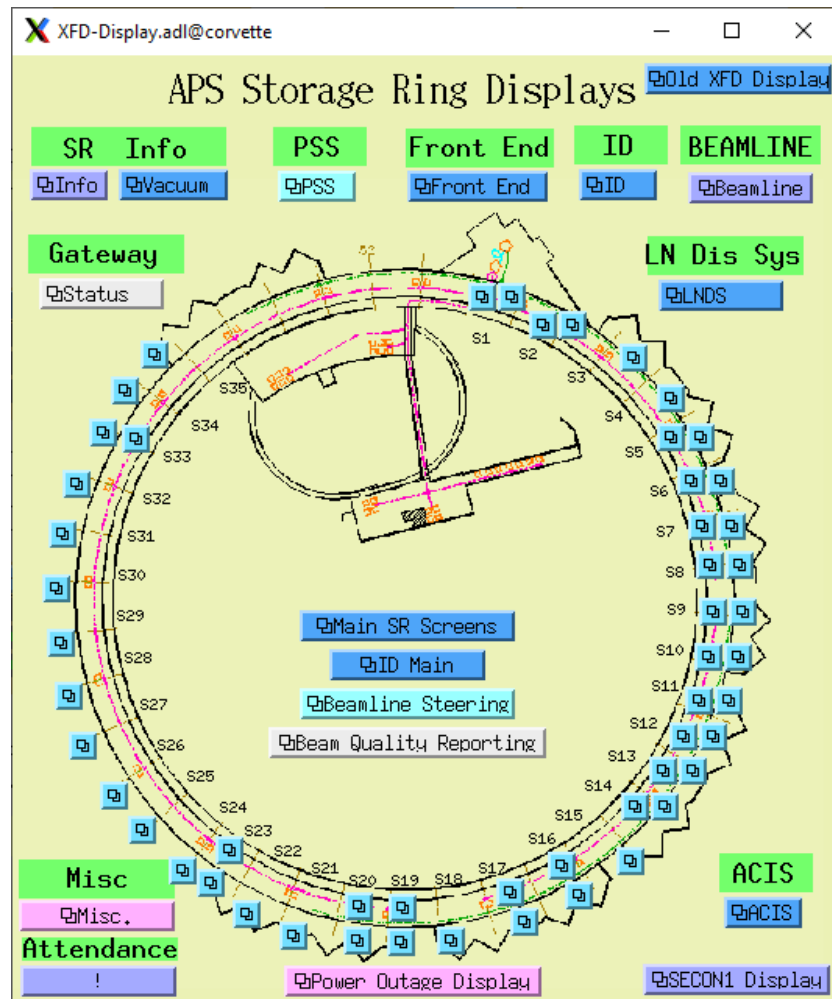
This document describes how to locate the relevant beamline EPICS medm screens that work with APS-U. Once the screens for a beamline are located and running it is easy to find the names of the EPICS Process Variables (PVs) by right clicking on a blank area on the display, selecting “PV Info”, and then left clicking on the widget with the PV of interest.

Top-level Screen XFD-Display.adl

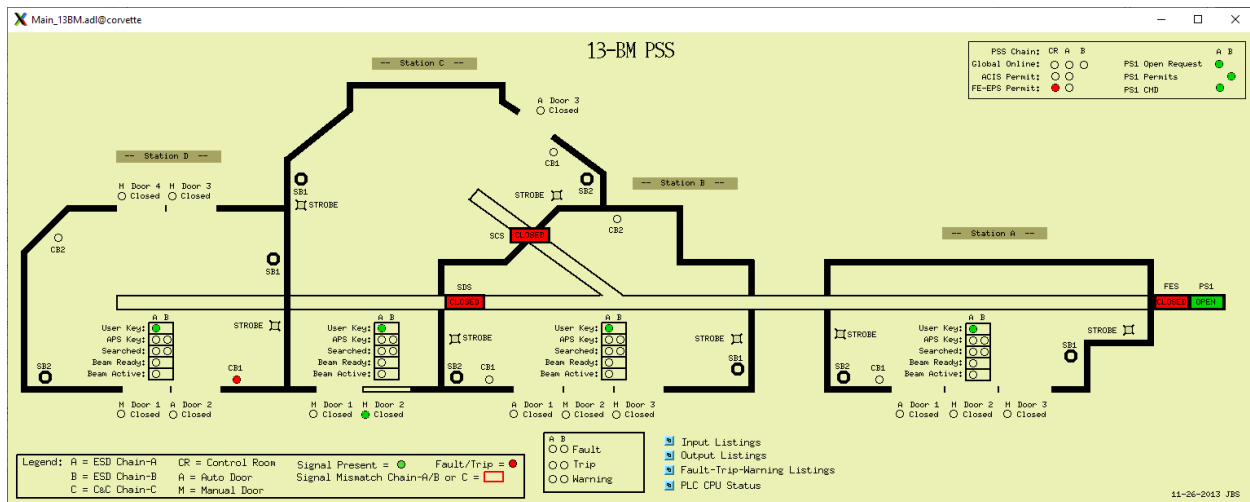
The top-level screen is called XFD-Display.adl. It can be started by running the following script on a Linux machine with medm installed.

```
/APSShare/adlsys/xfd-display
```

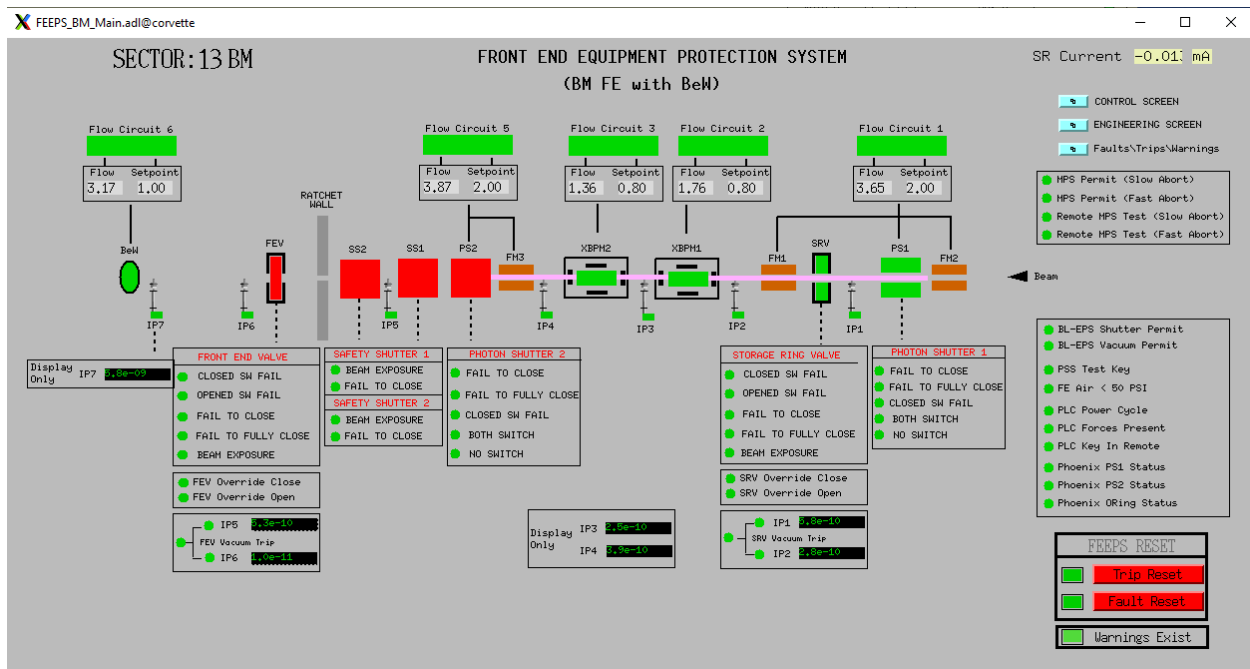
That brings up this screen:



Clicking on the left S13 related display button can bring up the 13-BM PSS screen:



Clicking on the left S13 related display button can bring up the 13-BM FEEPS screen.



FEEPS_Engineering.adl@corvette

SECTOR: 13 BM

FRONT END EQUIPMENT PROTECTION SYSTEM (HHL ID FE with BeM)

Inputs

- PS1 Opened
- PS1 Closed
- PS2 Opened
- PS2 Closed
- SS1 Opened
- SS2 Opened
- SRV Closed
- SRV Opened
- FEV Closed
- FEV Opened
- Ion Pump 1
- Ion Pump 2
- Ion Pump 3
- Ion Pump 4
- Ion Pump 5
- Ion Pump 6
- Ion Pump 7

Outputs

- SRV Open Command
- FEV Open Command
- PS1 Open Request to PSS
- FE Shutter Permit to PSS
- HPS Permit (Slow Abort)
- HPS Permit (Fast Abort)
- NO Beam Signal to BLEPS
- Last Valve Closed signal to BLEPS (FEV) or (BIV if present)

Internal Signals

- PS1 Open Permit
- PS1 Close Permit
- SRV Open Permit
- SRV Close Permit
- FEV Open Permit
- FEV Close Permit
- Vacuum Permit (FEV) from BLEPS
- Vacuum Permit (BIV) from BLEPS
- BL Type: BM

Misc. Signals

- Remote HPS Test (Slow Abort)
- Remote HPS Test (Fast Abort)
- PLC Key in Remote
- PLC Forces Present
- PLC Power Cycle
- Software Version 1
- Processor Version 92
- Processor Revision 2850
- Processor SN 15141318
- Last Scan Time 0 (nS)
- Maximum Scan Time 0 (nS)
- Current PLC Time 11:57:0 6 / 18 / 2024

Phoenix Status

- Phoenix PS1 Status
- Phoenix PS2 Status
- Phoenix ORING Status

13-ID PSS

Station D Station C Station E Station B Station A

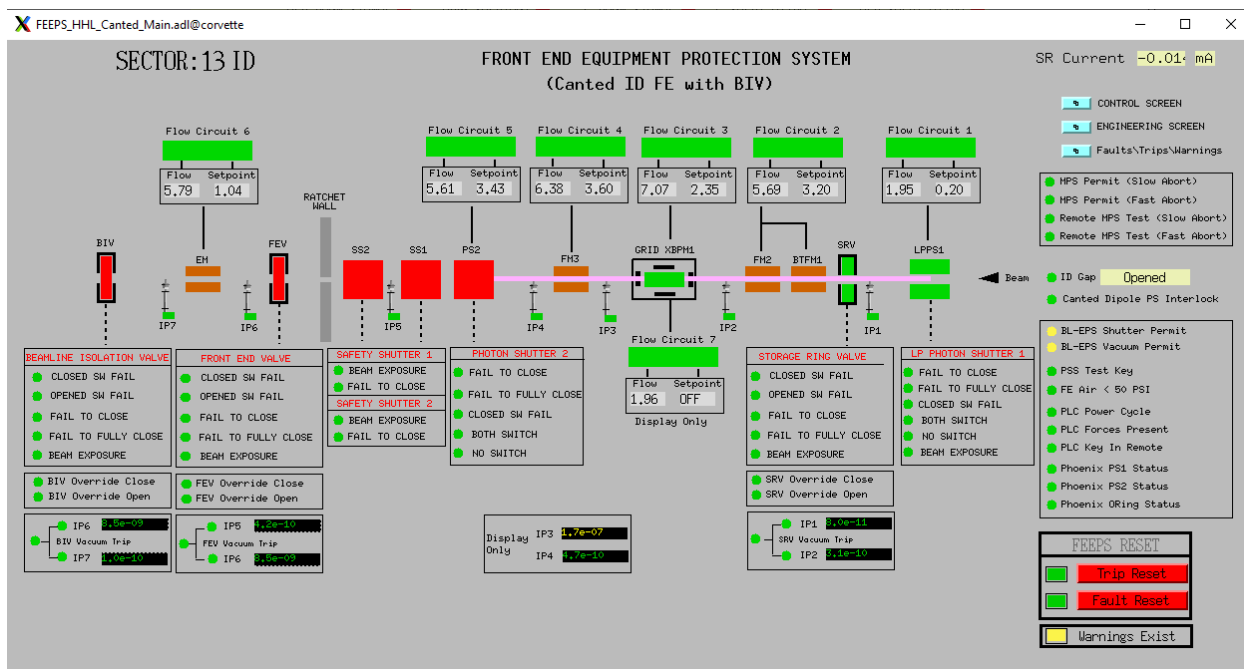
Legend: A = ESD Chain-A CR = Control Room Signal Present = ● Fault/Trip = ●
 B = ESD Chain-B A = Auto Door Signal Mismatch Chain-A/B or C =
 C = C&C Chain-C M = Manual Door

DIW Water Flows

	Chain A Flow			Chain B Flow		
	Actual	Setpoint	Scaling	Actual	Setpoint	Scaling
PHAWMask-St,-A,F	0.15	1.10	4.00	0.25	1.10	4.00
PHAWMask-St,-A,F	0.26	1.10	4.00	0.26	1.10	4.00
WBStop-St,-A,F	0.00	1.10	3.00	0.00	1.10	3.00
WBStop-St,-C,F	1.22	1.10	2.00	1.22	1.10	2.00
WBStop-St,-D,F	1.40	1.10	2.00	1.30	1.10	2.00
FixedWBStop-St,-A,F	0.20	0.70	4.00	0.25	0.70	4.00

12-21-2010 JB

Clicking on the right S13 related display button can bring up the 13-ID FEEPS screen:



Clicking on XFD-Display/Beamline button shows the status of all front-ends and ID gaps:

Beamline_Status.adl@corvette

Current: -0.0134 maLifetime: 0.0 Hours

Overall BeamlineFront End & ID Gap Status

NO BEAM

Shutters Open: 0

ACIS	ID (ms)	Front End Status	Positions	Beamline	APS Enable	PSS	ACIS	ID (ms)	Front End Status	Positions	Beamline	APS Enable	PSS
BL SS	US	FEF SLD FST FLT TRP WH	SV FEV BIV PSI	VAC PER	A B C D E F G H I	FAULT	BL SS	US	FEF SLD FST FLT TRP WH	SV FEV BIV PSI	VAC PER	A B C D E F G	FAULT
1-BM	140						19-BM	140					
1-ID	140						19-ID	140					
2-BM	140						20-BM	140					
2-ID	140						20-ID	140					
3-BM	140						21-BM	140					
3-ID	140						21-ID	140					
4-BM	140						22-BM	140					
4-ID	140						22-ID	140					
5-BM	140						23-BM	140					
5-ID	140						23-ID	140					
6-BM	140						24-BM	140					
6-ID	140						24-ID	100					
7-BM	140						25-BM	140					
7-ID	140						25-ID	140					
8-BM	140						26-BM	140					
8-ID	140						26-ID	140					
9-BM	140						27-BM	140					
9-ID	140						27-ID	55					
10-BM	140						28-BM	140					
10-ID	140						28-ID	140					
11-BM	140						29-BM	Off					
11-ID	140						29-ID	140					
12-BM	140						30-BM	140					
12-ID	140						30-ID	140					
13-BM	140						31-BM	140					
13-ID	140						31-ID	140					
14-BM	140						32-BM	140					
14-ID	140						32-ID	140					
15-BM	0						33-BM	140					
15-ID	140						33-ID	140					
16-BM	140						34-BM	140					
16-ID	140						34-ID	140					
17-BM	140						35-BM	140					
17-ID	140						35-ID	140					
18-BM	140						36-BM	140					
18-ID	140						36-ID	140					

ACIS BL: Global ON/OFF line
ACIS SS: Front End Shutters
PSS FAULT: PSS Fault Status
Beamline VAC: Beamline Vacuum Interlock Status
Beamline PER: Beamline Shutter Permit Status
APS Enable A: PSS APS Enable Status for Station A

June 18, 2024 12:24:27

Selecting XFD-Display/ID/ID Quick Controls brings up this screen:

Quick Control of Insertion Devices

SR Operating Mode : NO BEAM

Global Commands -> qGlobal

Set Average Gap

User Mode

BI Oper. Limit

Set Mode

Sector

Min. (Safety) Gap (mm)

Max. ID Gap (mm)

Gap (mm)

START Moving

STOP All Motion

Sector	Min. (Safety) Gap (mm)	Max. ID Gap (mm)	Gap (mm)
01US			
01DS	9,000	140,000	8,500
02US	9,000	140,000	8,500
02DS	9,000	140,000	8,500
03US	9,000	140,000	8,500
03DS	9,000	140,000	8,500
04US	9,500	140,000	9,000
04DS	9,500	140,000	9,000
05US			
05DS	9,000	140,000	8,500
06US	9,000	140,000	8,500
06DS	9,000	140,000	8,500
07US			
07DS	9,000	140,000	8,500
08US	9,000	140,000	8,500
08DS	9,000	140,000	8,500
09US			
09DS	9,000	140,000	8,500
10US			
10DS	10,500	140,000	10,000
11US	10,500	140,000	10,000
11DS	9,500	140,000	9,000
12US	9,000	140,000	8,500
12DS	9,000	140,000	8,500
13US	10,500	140,000	10,000
13DS	9,000	140,000	8,500
14US			
14DS	9,000	140,000	8,500
15US	8,000	140,000	8,000
15DS	8,700	140,000	8,700
16US	9,000	140,000	8,300
16DS	9,000	140,000	8,300
17US			
17DS	10,500	140,000	10,000
18US			
18DS	10,500	140,000	10,000

HLs 10/19/21

Selecting the 13US related display on the above screen brings up control of the sector 13 upstream undulator:

newIDControl_Planar.adl... — □ ×

ID Gap Control

S13ID-UpStream

Device: APS33#31S Magnet: APS33#31S

Software Version: 1.04-4.06

Avg	139.998	10.346
Current		
Tpr	-0.003	0.000

Avg	140.000	140.000
Desired		
Tpr	0.000	-nan

Gap (mm) Energy (keV)

Optimum Taper: 0.000

Start **Stop**

Access Mode : Machine Physics

Machine Physics ▾

Harmonic Select (1-7): 1

Gap Deadband (micron): 0

BL Comm. Limit (mm): 10.500

Total Power: 0 W /200ma

Status Messages:

Beamline Limit Value OK

Energy <=> Gap Out of Range!!

ID Info: !

Similarly selecting 13DS brings up control of the sector 13 downstream undulator:

newIDControl_Planar.adl... — □ ×

ID Gap Control

S13ID-DownStream

Device: APS27#3S Magnet: APS27#3S
Software Version: 1.04-4.06

Avg	140.001	12.646
Current		
Tpr	-0.008	0.000

Avg	140.000	140.000
Desired		
Tpr	0.000	-nan

Gap (mm) Energy (keV)

Optimum Taper: 0.000

Start **Stop**

Access Mode : Machine Physics

Machine Physics ▾

Harmonic Select (1-7): 1

Gap Deadband (micron): 0

BL Comm. Limit (mm): 9.000

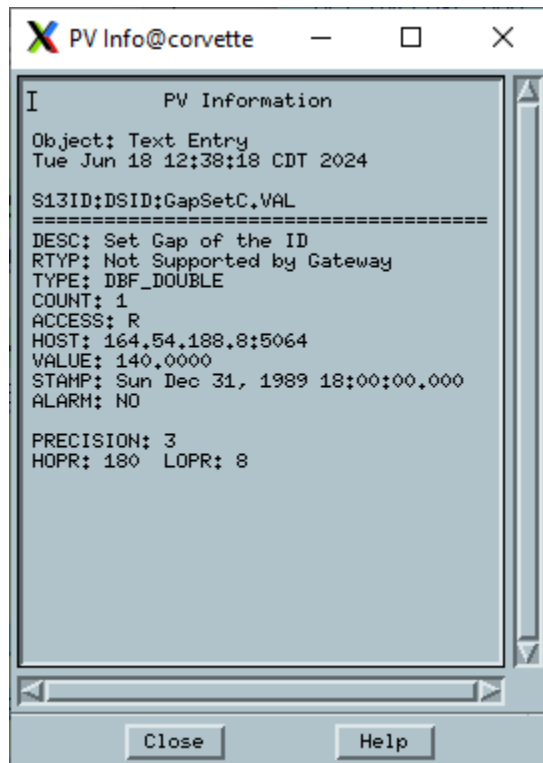
Total Power: 0 W /200ma

Status Messages:

Beamline Limit Value OK
Energy <=> Gap Out of Range!!

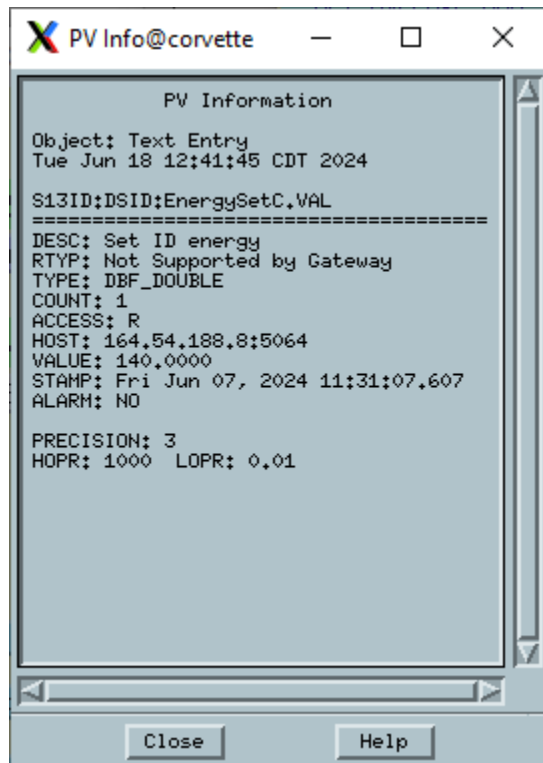
ID Info: !

Selecting PV Info for the average gap control value (140 in blue above) brings up this screen.



This shows that the name of the PV for the average gap is S13ID:DSID:GapSetC.VAL. That is the PV one needs to write to control the gap.

Similarly, selecting PV for the Energy control (also 140 in blue above) brings up this screen:



This shows that the name of the PV for the average gap is S13ID:DSID:EnergySetC.VAL. That is the PV one needs to write to control the energy.