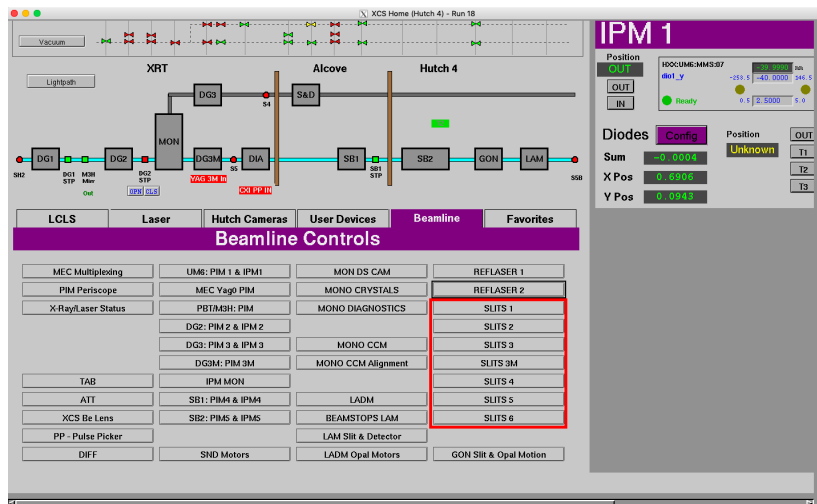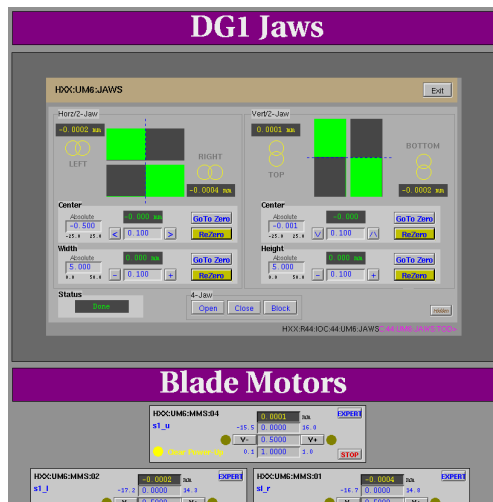# Slits

All (relevant) slits can be found from the home screens in the "Beamline" tab. The screens look like:

The screen shows the slit with gap & offset motion. The four motors are shown below.

Useful? xcs_dg3_slits

Slit Operation

Slits can be operated from their respective EDM screen.

The interface will allow setting the horizontal and vertical position of the slit as well as the horizontal aperture (width) and the vertical gap (height).

It is not necessary to control each blade motor individually. Individual motors are visible in the EDM screen for monitoring, debugging, configuration, and other maintenance activities.

Additional controls include:

- Open button: uses the built-in 'OPEN' record to move open the aperture.
  Note: this fully open the right and bottom blade. Left and Top blades do not move. Uncertain if this is the intended behavior or if this behavior is specific to the XCS s4 slit.
- Close button: will set the horizontal and vertical aperture to 0 mm.
- Block' button: will overlap the slits to block the beam.

Python Interface

Slits may also be controlled using the pcdsdevices slit hutch-python interface. Detailed API documentation can be found in the pcdshub.github.io Slit page.

Below you can find the available slit methods and basic usage using XCS's S4 slit as an example

```
# Available methods
In [1]: s4.open()
          s4.block      s4.hg        s4.mv        s4.put        s4.vo
          s4.close      s4.ho        s4.open      s4.stop       s4.wm
          s4.get        s4.move      s4.position  s4.vg         s4.wm_update

# Display current slit position
In [10]: s4
Out[10]:
XCS Slit xcs_sb1_slits
(hg, vg): (+14.9998, +15.0000) [mm]
(ho, vo): (+0.8061, +0.0003) [mm]

# Get and set the horizontal center position using the 'ho' method. Use 'vo'
In [11]: s4.ho()
Out[11]: 0.8059499999999997
In [12]: s4.ho(0.8)
INFO     _log_move - Moving xcs_sb1_slits_xcenter from 0.8059499999999997 to 0.8

# Get and set the horizontal aperture (gap) with the 'hg' method. Use the 'vg' method for vertical aperture
control.
In [13]: s4.hg()
Out[13]: 14.9985
In [14]: s4.hg(14)
INFO     _log_move - Moving xcs_sb1_slits_xwidth from 14.9985 to 14
```