Image Source Control Reference

The Image Source control class is intended for low-level control of image source devices such as image sensors. The devices feature an analogue to digital converter and a bus transmitter to transmit the image data out of the device.

Image Source Control IDs

`V4L2_CID_IMAGE_SOURCE_CLASS (class)`

The IMAGE_SOURCE class descriptor.

`V4L2_CID_VBLANK (integer)`

Vertical blanking. The idle period after every frame during which no image data is produced. The unit of vertical blanking is a line. Every line has length of the image width plus horizontal blanking at the pixel rate defined by `V4L2_CID_PIXEL_RATE` control in the same sub-device.

`V4L2_CID_HBLANK (integer)`

Horizontal blanking. The idle period after every line of image data during which no image data is produced. The unit of horizontal blanking is pixels.

`V4L2_CID_ANALOGUE_GAIN (integer)`

Analogue gain is gain affecting all colour components in the pixel matrix. The gain operation is performed in the analogue domain before A/D conversion.

`V4L2_CID_TEST_PATTERN_RED (integer)`

Test pattern red colour component.

`V4L2_CID_TEST_PATTERN_GREENR (integer)`

Test pattern green (next to red) colour component.

`V4L2_CID_TEST_PATTERN_BLUE (integer)`

Test pattern blue colour component.

`V4L2_CID_TEST_PATTERN_GREENB (integer)`

Test pattern green (next to blue) colour component.

`V4L2_CID_UNIT_CELL_SIZE (struct)`

This control returns the unit cell size in nanometers. The struct :c:type:`v4l2_area` provides the width and the height in separate fields to take into consideration asymmetric pixels. This control does not take into consideration any possible hardware binning. The unit cell consists of the whole area of the pixel, sensitive and non-sensitive. This control is required for automatic calibration of sensors/cameras.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\v4l\[linux-master][Documentation][userspace-api][media][v4l]ext-ctrls-image-source.rst, line 53); *backlink*

Unknown interpreted text role "c:type".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\v4l\[linux-master][Documentation][userspace-api][media][v4l]ext-ctrls-image-source.rst, line 62)

Unknown directive type "c:type".

```
.. c:type:: v4l2_area
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\v4l\[linux-master][Documentation][userspace-api][media][v4l]ext-ctrls-image-source.rst, line 64)

Unknown directive type "flat-table".

```
.. flat-table:: struct v4l2_area
    :header-rows:  0
    :stub-columns: 0
```

```
        :widths:       1 1 2

        * - __u32
          - ``width``
          - Width of the area.
        * - __u32
          - ``height``
          - Height of the area.
```

V4L2_CID_NOTIFY_GAINS (integer array)

The sensor is notified what gains will be applied to the different colour channels by subsequent processing (such as by an ISP). The sensor is merely informed of these values in case it performs processing that requires them, but it does not apply them itself to the output pixels.

Currently it is defined only for Bayer sensors, and is an array control taking 4 gain values, being the gains for each of the Bayer channels. The gains are always in the order B, Gb, Gr and R, irrespective of the exact Bayer order of the sensor itself.

The use of an array allows this control to be extended to sensors with, for example, non-Bayer CFAs (colour filter arrays).

The units for the gain values are linear, with the default value representing a gain of exactly 1.0. For example, if this default value is reported as being (say) 128, then a value of 192 would represent a gain of exactly 1.5.