

# ioctl VIDIOC\_G\_PARM, VIDIOC\_S\_PARM

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\v4l\[linux-master] [Documentation] [userspace-api] [media] [v4l]vidioc-g-parm.rst, line 2)**

Unknown directive type "c.namespace".

```
.. c:namespace:: V4L
```

## Name

VIDIOC\_G\_PARM - VIDIOC\_S\_PARM - Get or set streaming parameters

## Synopsis

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\v4l\[linux-master] [Documentation] [userspace-api] [media] [v4l]vidioc-g-parm.rst, line 18)**

Unknown directive type "c.macro".

```
.. c:macro:: VIDIOC_G_PARM
```

```
int ioctl(int fd, VIDIOC_G_PARM, v4l2_streamparm *argp)
```

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\v4l\[linux-master] [Documentation] [userspace-api] [media] [v4l]vidioc-g-parm.rst, line 22)**

Unknown directive type "c.macro".

```
.. c:macro:: VIDIOC_S_PARM
```

```
int ioctl(int fd, VIDIOC_S_PARM, v4l2_streamparm *argp)
```

## Arguments

fd

File descriptor returned by `:c:func:`open()``.

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\v4l\[linux-master] [Documentation] [userspace-api] [media] [v4l]vidioc-g-parm.rst, line 30); [backlink](#)**

Unknown interpreted text role "c:func".

argp

Pointer to struct `:c:type:`v4l2_streamparm``.

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\v4l\[linux-master] [Documentation] [userspace-api] [media] [v4l]vidioc-g-parm.rst, line 33); [backlink](#)**

Unknown interpreted text role "c:type".

## Description

Applications can request a different frame interval. The capture or output device will be reconfigured to support the requested frame interval if possible. Optionally drivers may choose to skip or repeat frames to achieve the requested frame interval.

For stateful encoders (see `:ref:`encoder``) this represents the frame interval that is typically embedded in the encoded video stream.

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\v41\[linux-master] [Documentation] [userspace-api] [media] [v41]vidioc-g-parm.rst, line 43); [backlink](#)

Unknown interpreted text role "ref".

Changing the frame interval shall never change the format. Changing the format, on the other hand, may change the frame interval.

Further these ioctl's can be used to determine the number of buffers used internally by a driver in read/write mode. For implications see the section discussing the `c:func:read()` function.

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\v41\[linux-master] [Documentation] [userspace-api] [media] [v41]vidioc-g-parm.rst, line 49); [backlink](#)

Unknown interpreted text role "c:func".

To get and set the streaming parameters applications call the `ref:VIDIOC_G_PARM<VIDIOC_G_PARM>` and `ref:VIDIOC_S_PARM<VIDIOC_G_PARM>` ioctl, respectively. They take a pointer to a struct `c:type:v4l2_streamparm` which contains a union holding separate parameters for input and output devices.

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\v41\[linux-master] [Documentation] [userspace-api] [media] [v41]vidioc-g-parm.rst, line 53); [backlink](#)

Unknown interpreted text role "ref".

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\v41\[linux-master] [Documentation] [userspace-api] [media] [v41]vidioc-g-parm.rst, line 53); [backlink](#)

Unknown interpreted text role "ref".

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\v41\[linux-master] [Documentation] [userspace-api] [media] [v41]vidioc-g-parm.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\v41\[linux-master] [Documentation] [userspace-api] [media] [v41]vidioc-g-parm.rst, line 59)

Unknown directive type "tabularcolumns".

```
.. tabularcolumns:: |p{3.7cm}|p{3.5cm}|p{10.1cm}|
```

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\v41\[linux-master] [Documentation] [userspace-api] [media] [v41]vidioc-g-parm.rst, line 61)

Unknown directive type "c:type".

```
.. c:type:: v4l2_streamparm
```

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\v41\[linux-master] [Documentation] [userspace-api] [media] [v41]vidioc-g-parm.rst, line 63)

Unknown directive type "flat-table".

```
.. flat-table:: struct v4l2_streamparm
   :header-rows: 0
   :stub-columns: 0
   :widths:      1 1 2

   * - __u32
```

```

- ``type``
- The buffer (stream) type, same as struct
  :c:type:`v4l2_format` ``type``, set by the
  application. See :c:type:`v4l2_buf_type`.
* - union {
  - ``parm``
* - struct :c:type:`v4l2_captureparm`
  - ``capture``
  - Parameters for capture devices, used when ``type`` is
    ``V4L2_BUF_TYPE_VIDEO_CAPTURE`` or
    ``V4L2_BUF_TYPE_VIDEO_CAPTURE_MPLANE``.
* - struct :c:type:`v4l2_outputparm`
  - ``output``
  - Parameters for output devices, used when ``type`` is
    ``V4L2_BUF_TYPE_VIDEO_OUTPUT`` or ``V4L2_BUF_TYPE_VIDEO_OUTPUT_MPLANE``.
* - __u8
  - ``raw_data`` [200]
  - A place holder for future extensions.
* - }

```

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\v4l\[linux-master] [Documentation] [userspace-api] [media] [v4l]vidioc-g-parm.rst, line 90)**

Unknown directive type "tabularcolumns".

```
.. tabularcolumns:: |p{4.4cm}|p{4.4cm}|p{8.5cm}|
```

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\v4l\[linux-master] [Documentation] [userspace-api] [media] [v4l]vidioc-g-parm.rst, line 92)**

Unknown directive type "c:type".

```
.. c:type:: v4l2_captureparm
```

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\v4l\[linux-master] [Documentation] [userspace-api] [media] [v4l]vidioc-g-parm.rst, line 94)**

Unknown directive type "flat-table".

```
.. flat-table:: struct v4l2_captureparm
   :header-rows: 0
   :stub-columns: 0
   :widths:      1 1 2

```

```

* - __u32
  - ``capability``
  - See :ref:`parm-caps`.
* - __u32
  - ``capturemode``
  - Set by drivers and applications, see :ref:`parm-flags`.
* - struct :c:type:`v4l2_fract`
  - ``timeperframe``
  - This is the desired period between successive frames captured by
    the driver, in seconds.
* - :cspan:`2`

```

This will configure the speed at which the video source (e.g. a sensor) generates video frames. If the speed is fixed, then the driver may choose to skip or repeat frames in order to achieve the requested frame rate.

For stateful encoders (see :ref:`encoder`) this represents the frame interval that is typically embedded in the encoded video stream.

Applications store here the desired frame period, drivers return the actual frame period.

Changing the video standard (also implicitly by switching the video input) may reset this parameter to the nominal frame period. To reset manually applications can just set this field to zero.

```

Drivers support this function only when they set the
`V4L2_CAP_TIMEPERFRAME` flag in the `capability` field.
* - __u32
  - `extendedmode`
  - Custom (driver specific) streaming parameters. When unused,
    applications and drivers must set this field to zero. Applications
    using this field should check the driver name and version, see
    :ref:`querycap`.
* - __u32
  - `readbuffers`
  - Applications set this field to the desired number of buffers used
    internally by the driver in :c:func:`read()` mode.
    Drivers return the actual number of buffers. When an application
    requests zero buffers, drivers should just return the current
    setting rather than the minimum or an error code. For details see
    :ref:`rw`.
* - __u32
  - `reserved` [4]
  - Reserved for future extensions. Drivers and applications must set
    the array to zero.

```

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\v4l\linux-master [Documentation] [userspace-api] [media] [v4l]vidioc-g-parm.rst, line 149)**

Unknown directive type "tabularcolumns".

```
.. tabularcolumns:: |p{4.4cm}|p{4.4cm}|p{8.5cm}|
```

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\v4l\linux-master [Documentation] [userspace-api] [media] [v4l]vidioc-g-parm.rst, line 151)**

Unknown directive type "c.type".

```
.. c:type:: v4l2_outputparm
```

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\v4l\linux-master [Documentation] [userspace-api] [media] [v4l]vidioc-g-parm.rst, line 153)**

Unknown directive type "flat-table".

```

.. flat-table:: struct v4l2_outputparm
   :header-rows: 0
   :stub-columns: 0
   :widths:      1 1 2

   * - __u32
     - `capability`
     - See :ref:`parm-caps`.
   * - __u32
     - `outputmode`
     - Set by drivers and applications, see :ref:`parm-flags`.
   * - struct :c:type:`v4l2_fract`
     - `timeperframe`
     - This is the desired period between successive frames output by the
       driver, in seconds.
   * - :cspan:`2`

```

The field is intended to repeat frames on the driver side in :c:func:`write()` mode (in streaming mode timestamps can be used to throttle the output), saving I/O bandwidth.

For stateful encoders (see :ref:`encoder`) this represents the frame interval that is typically embedded in the encoded video stream and it provides a hint to the encoder of the speed at which raw frames are queued up to the encoder.

Applications store here the desired frame period, drivers return the actual frame period.

Changing the video standard (also implicitly by switching

the video output) may reset this parameter to the nominal frame period. To reset manually applications can just set this field to zero.

Drivers support this function only when they set the ``V4L2\_CAP\_TIMEPERFRAME`` flag in the ``capability`` field.

- \* - `_u32`
  - ``extendedmode``
  - Custom (driver specific) streaming parameters. When unused, applications and drivers must set this field to zero. Applications using this field should check the driver name and version, see :ref:`querycap`.
- \* - `_u32`
  - ``writebuffers``
  - Applications set this field to the desired number of buffers used internally by the driver in `:c:func:`write()`` mode. Drivers return the actual number of buffers. When an application requests zero buffers, drivers should just return the current setting rather than the minimum or an error code. For details see :ref:`rw`.
- \* - `_u32`
  - ``reserved`` [4]
  - Reserved for future extensions. Drivers and applications must set the array to zero.

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\v4l\[linux-master] [Documentation] [userspace-api] [media] [v4l]vidioc-g-parm.rst, line 209)**

Unknown directive type "tabularcolumns".

```
.. tabularcolumns:: |p{6.6cm}|p{2.2cm}|p{8.5cm}|
```

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\v4l\[linux-master] [Documentation] [userspace-api] [media] [v4l]vidioc-g-parm.rst, line 213)**

Unknown directive type "flat-table".

```
.. flat-table:: Streaming Parameters Capabilities
   :header-rows: 0
   :stub-columns: 0
   :widths:      3 1 4

   * - ``V4L2_CAP_TIMEPERFRAME``
     - 0x1000
     - The frame period can be modified by setting the ``timeperframe``
       field.
```

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\v4l\[linux-master] [Documentation] [userspace-api] [media] [v4l]vidioc-g-parm.rst, line 224)**

Unknown directive type "tabularcolumns".

```
.. tabularcolumns:: |p{6.6cm}|p{2.2cm}|p{8.5cm}|
```

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\v4l\[linux-master] [Documentation] [userspace-api] [media] [v4l]vidioc-g-parm.rst, line 228)**

Unknown directive type "flat-table".

```
.. flat-table:: Capture Parameters Flags
   :header-rows: 0
   :stub-columns: 0
   :widths:      3 1 4

   * - ``V4L2_MODE_HIGHQUALITY``
     - 0x0001
```

- High quality imaging mode. High quality mode is intended for still imaging applications. The idea is to get the best possible image quality that the hardware can deliver. It is not defined how the driver writer may achieve that; it will depend on the hardware and the ingenuity of the driver writer. High quality mode is a different mode from the regular motion video capture modes. In high quality mode:
  - The driver may be able to capture higher resolutions than for motion capture.
  - The driver may support fewer pixel formats than motion capture (eg; true color).
  - The driver may capture and arithmetically combine multiple successive fields or frames to remove color edge artifacts and reduce the noise in the video data.
  - The driver may capture images in slices like a scanner in order to handle larger format images than would otherwise be possible.
  - An image capture operation may be significantly slower than motion capture.
  - Moving objects in the image might have excessive motion blur.
  - Capture might only work through the `:c:func:`read()`` call.

## Return Value

On success 0 is returned, on error -1 and the `errno` variable is set appropriately. The generic error codes are described at the [ref: Generic Error Codes <gen-errors>](#) chapter.

**System Message: ERROR/3** (D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\v4l\[linux-master] [Documentation] [userspace-api] [media] [v4l]vidioc-g-parm.rst, line 267); [backlink](#)

Unknown interpreted text role "ref".