

Input/Output

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\v4l\linux-master) (Documentation) (userspace-api) (media) (v4l) io.rst, line 2)

Unknown directive type "c.namespace".

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

The V4L2 API defines several different methods to read from or write to a device. All drivers exchanging data with applications must support at least one of them.

The classic I/O method using the `:c:func:'read()'` and `:c:func:'write()'` function is automatically selected after opening a V4L2 device. When the driver does not support this method attempts to read or write will fail at any time.

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Other methods must be negotiated. To select the streaming I/O method with memory mapped or user buffers applications call the `ref:'VIDIOC_REQBUFS'` ioctl. The asynchronous I/O method is not defined yet.

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Video overlay can be considered another I/O method, although the application does not directly receive the image data. It is selected by initiating video overlay with the `ref:'VIDIOC_S_FMT <VIDIOC_G_FMT>'` ioctl. For more information see `ref:'overlay'`.

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Generally exactly one I/O method, including overlay, is associated with each file descriptor. The only exceptions are applications not exchanging data with a driver ("panel applications", see `ref:'open'`) and drivers permitting simultaneous video capturing and overlay using the same file descriptor, for compatibility with V4L and earlier versions of V4L2.

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`ref:'VIDIOC_S_FMT <VIDIOC_G_FMT>'` and `ref:'VIDIOC_REQBUFS'` would permit this to some degree, but for simplicity drivers need not support switching the I/O method (after first switching away from read/write) other than by closing and reopening the

device.

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The following sections describe the various I/O methods in more detail.

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Unknown directive type "toctree".

```
.. toctree::
    :maxdepth: 1

    rw
    mmap
    userp
    dmabuf
    async
    buffer
    field-order
```