## Read/Write

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master\Documentation\userspace-api\media\v41\(linux-master)\(Documentation\)\(userspace-api\)\((media)\(v41)\rw.rst, line 2\)\)
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.. c:namespace:: V4L
```

Input and output devices support the :c:func:'read()' and :c:func:'write()' function, respectively, when the V4L2\_CAP\_READWRITE flag in the capabilities field of struct :c:type:'v4l2 capability' returned by the :ref:'VIDIOC QUERYCAP' ioctl is set.

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Drivers may need the CPU to copy the data, but they may also support DMA to or from user memory, so this I/O method is not necessarily less efficient than other methods merely exchanging buffer pointers. It is considered inferior though because no meta-information like frame counters or timestamps are passed. This information is necessary to recognize frame dropping and to synchronize with other data streams. However this is also the simplest I/O method, requiring little or no setup to exchange data. It permits command line stunts like this (the vidctrl tool is fictitious):

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master\Documentation\userspace-api\media\v41\(linux-master\) (Documentation) (userspace-
api) (media) (v41) rw.rst, line 26)

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.. code-block:: none

$ vidctrl /dev/video --input=0 --format=YUYV --size=352x288
$ dd if=/dev/video of=myimage.422 bs=202752 count=1
```

To read from the device applications use the :c:func:`read()` function, to write the :c:func:`write()` function. Drivers must implement one I/O method if they exchange data with applications, but it need not be this. [1] When reading or writing is supported, the driver must also support the :c:func:`select()` and :c:func:`poll()` function. [2]

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- [1] It would be desirable if applications could depend on drivers supporting all I/O interfaces, but as much as the complex memory mapping I/O can be inadequate for some devices we have no reason to require this interface, which is most useful for simple applications capturing still images.
- At the driver level :::func:'select()' and :::func:'poll()' are the same, and :::func:'select()' is too important to be optional.

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