ioctls CEC_G_MODE and CEC_S_MODE

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

Unknown directive type "c:namespace".

```
.. c:namespace:: CEC
```

CEC_G_MODE, CEC_S_MODE - Get or set exclusive use of the CEC adapter

Synopsis

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\cec\[linux-master][Documentation][userspace-api][media][cec]cec-ioc-g-mode.rst, line 17)

Unknown directive type "c:macro".

```
.. c:macro:: CEC_G_MODE
```

```
int ioctl(int fd, CEC_G_MODE, __u32 *argp)
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\cec\[linux-master][Documentation][userspace-api][media][cec]cec-ioc-g-mode.rst, line 21)

Unknown directive type "c:macro".

```
.. c:macro:: CEC_S_MODE
```

```
int ioctl(int fd, CEC_S_MODE, __u32 *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\cec\[linux-master][Documentation][userspace-api][media][cec]cec-ioc-g-mode.rst, line 29); *backlink*

Unknown interpreted text role "c:func".

`argp`

Pointer to CEC mode.

Description

By default any filehandle can use :ref:`CEC_TRANSMIT`, but in order to prevent applications from stepping on each others toes it must be possible to obtain exclusive access to the CEC adapter. This ioctl sets the filehandle to initiator and/or follower mode which can be exclusive depending on the chosen mode. The initiator is the filehandle that is used to initiate messages, i.e. it commands other CEC devices. The follower is the filehandle that receives messages sent to the CEC adapter and processes them. The same filehandle can be both initiator and follower, or this role can be taken by two different filehandles.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\cec\[linux-master][Documentation][userspace-api][media][cec]cec-ioc-g-mode.rst, line 37); *backlink*

Unknown interpreted text role "ref".

When a CEC message is received, then the CEC framework will decide how it will be processed. If the message is a reply to an earlier transmitted message, then the reply is sent back to the filehandle that is waiting for it. In addition the CEC framework will process it.

If the message is not a reply, then the CEC framework will process it first. If there is no follower, then the message is just discarded and a feature abort is sent back to the initiator if the framework couldn't process it. If there is a follower, then the message is passed on to the follower who will use :ref:`ioctl CEC_RECEIVE <CEC_RECEIVE>` to dequeue the new message. The framework expects the follower to make the right decisions.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\cec\[linux-master][Documentation][userspace-api][media][cec]cec-ioc-g-mode.rst, line 52); *backlink*

Unknown interpreted text role "ref".

The CEC framework will process core messages unless requested otherwise by the follower. The follower can enable the passthrough mode. In that case, the CEC framework will pass on most core messages without processing them and the follower will have to implement those messages. There are some messages that the core will always process, regardless of the passthrough mode. See :ref:`cec-core-processing` for details.

System Message: ERROR/3 (`D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\cec\[linux-master][Documentation][userspace-api][media][cec]cec-ioc-g-mode.rst`, **line 60**); ***backlink***

Unknown interpreted text role "ref".

If there is no initiator, then any CEC filehandle can use :ref:`ioctl CEC_TRANSMIT <CEC_TRANSMIT>`. If there is an exclusive initiator then only that initiator can call :ref:`CEC_TRANSMIT`. The follower can of course always call :ref:`ioctl CEC_TRANSMIT <CEC_TRANSMIT>`.

System Message: ERROR/3 (`D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\cec\[linux-master][Documentation][userspace-api][media][cec]cec-ioc-g-mode.rst`, **line 67**); ***backlink***

Unknown interpreted text role "ref".

System Message: ERROR/3 (`D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\cec\[linux-master][Documentation][userspace-api][media][cec]cec-ioc-g-mode.rst`, **line 67**); ***backlink***

Unknown interpreted text role "ref".

System Message: ERROR/3 (`D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\cec\[linux-master][Documentation][userspace-api][media][cec]cec-ioc-g-mode.rst`, **line 67**); ***backlink***

Unknown interpreted text role "ref".

Available initiator modes are:

System Message: ERROR/3 (`D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\cec\[linux-master][Documentation][userspace-api][media][cec]cec-ioc-g-mode.rst`, **line 75**)

Unknown directive type "tabularcolumns".

```
.. tabularcolumns:: |p{5.6cm}|p{0.9cm}|p{10.8cm}|
```

System Message: ERROR/3 (`D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\cec\[linux-master][Documentation][userspace-api][media][cec]cec-ioc-g-mode.rst`, **line 79**)

Unknown directive type "flat-table".

```
.. flat-table:: Initiator Modes
    :header-rows:  0
    :stub-columns: 0
    :widths:       3 1 16

    * .. _`CEC-MODE-NO-INITIATOR`:

      - ``CEC_MODE_NO_INITIATOR``
      - 0x0
      - This is not an initiator, i.e. it cannot transmit CEC messages or
        make any other changes to the CEC adapter.
    * .. _`CEC-MODE-INITIATOR`:

      - ``CEC_MODE_INITIATOR``
      - 0x1
      - This is an initiator (the default when the device is opened) and
        it can transmit CEC messages and make changes to the CEC adapter,
        unless there is an exclusive initiator.
    * .. _`CEC-MODE-EXCL-INITIATOR`:

      - ``CEC_MODE_EXCL_INITIATOR``
      - 0x2
      - This is an exclusive initiator and this file descriptor is the
        only one that can transmit CEC messages and make changes to the
        CEC adapter. If someone else is already the exclusive initiator
        then an attempt to become one will return the ``EBUSY`` error code
        error.
```

Available follower modes are:

System Message: ERROR/3 (`D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\cec\[linux-master][Documentation][userspace-api][media][cec]cec-ioc-g-mode.rst`, **line 109**)

Unknown directive type "tabularcolumns".

```
.. tabularcolumns:: |p{6.6cm}|p{0.9cm}|p{9.8cm}|
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\cec\[linux-master][Documentation][userspace-api][media][cec]cec-ioc-g-mode.rst, line 113)

Unknown directive type "cssclass".

```
.. cssclass:: longtable
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\cec\[linux-master][Documentation][userspace-api][media][cec]cec-ioc-g-mode.rst, line 115)

Unknown directive type "flat-table".

```
.. flat-table:: Follower Modes
    :header-rows:  0
    :stub-columns: 0
    :widths:       3 1 16

    * .. _`CEC-MODE-NO-FOLLOWER`:

      - ``CEC_MODE_NO_FOLLOWER``
      - 0x00
      - This is not a follower (the default when the device is opened).
    * .. _`CEC-MODE-FOLLOWER`:

      - ``CEC_MODE_FOLLOWER``
      - 0x10
      - This is a follower and it will receive CEC messages unless there
        is an exclusive follower. You cannot become a follower if
        :ref:`CEC_CAP_TRANSMIT <CEC-CAP-TRANSMIT>` is not set or if :ref:`CEC_MODE_NO_INITIATOR <CEC-MODE-NO-
        was specified, the ``EINVAL`` error code is returned in that case.
    * .. _`CEC-MODE-EXCL-FOLLOWER`:

      - ``CEC_MODE_EXCL_FOLLOWER``
      - 0x20
      - This is an exclusive follower and only this file descriptor will
        receive CEC messages for processing. If someone else is already
        the exclusive follower then an attempt to become one will return
        the ``EBUSY`` error code. You cannot become a follower if
        :ref:`CEC_CAP_TRANSMIT <CEC-CAP-TRANSMIT>` is not set or if :ref:`CEC_MODE_NO_INITIATOR <CEC-MODE-NO-
        was specified, the ``EINVAL`` error code is returned in that case.
    * .. _`CEC-MODE-EXCL-FOLLOWER-PASSTHRU`:

      - ``CEC_MODE_EXCL_FOLLOWER_PASSTHRU``
      - 0x30
      - This is an exclusive follower and only this file descriptor will
        receive CEC messages for processing. In addition it will put the
        CEC device into passthrough mode, allowing the exclusive follower
        to handle most core messages instead of relying on the CEC
        framework for that. If someone else is already the exclusive
        follower then an attempt to become one will return the ``EBUSY`` error
        code. You cannot become a follower if :ref:`CEC_CAP_TRANSMIT <CEC-CAP-TRANSMIT>`
        is not set or if :ref:`CEC_MODE_NO_INITIATOR <CEC-MODE-NO-INITIATOR>` was specified,
        the ``EINVAL`` error code is returned in that case.
    * .. _`CEC-MODE-MONITOR-PIN`:

      - ``CEC_MODE_MONITOR_PIN``
      - 0xd0
      - Put the file descriptor into pin monitoring mode. Can only be used in
        combination with :ref:`CEC_MODE_NO_INITIATOR <CEC-MODE-NO-INITIATOR>`,
        otherwise the ``EINVAL`` error code will be returned.
        This mode requires that the :ref:`CEC_CAP_MONITOR_PIN <CEC-CAP-MONITOR-PIN>`
        capability is set, otherwise the ``EINVAL`` error code is returned.
        While in pin monitoring mode this file descriptor can receive the
        ``CEC_EVENT_PIN_CEC_LOW`` and ``CEC_EVENT_PIN_CEC_HIGH`` events to see the
        low-level CEC pin transitions. This is very useful for debugging.
        This mode is only allowed if the process has the ``CAP_NET_ADMIN``
        capability. If that is not set, then the ``EPERM`` error code is returned.
    * .. _`CEC-MODE-MONITOR`:

      - ``CEC_MODE_MONITOR``
      - 0xe0
      - Put the file descriptor into monitor mode. Can only be used in
        combination with :ref:`CEC_MODE_NO_INITIATOR <CEC-MODE-NO-INITIATOR>`,
        otherwise the ``EINVAL`` error code will be returned.
        In monitor mode all messages this CEC
        device transmits and all messages it receives (both broadcast
        messages and directed messages for one its logical addresses) will
        be reported. This is very useful for debugging. This is only
        allowed if the process has the ``CAP_NET_ADMIN`` capability. If
        that is not set, then the ``EPERM`` error code is returned.
    * .. _`CEC-MODE-MONITOR-ALL`:

      - ``CEC_MODE_MONITOR_ALL``
      - 0xf0
      - Put the file descriptor into 'monitor all' mode. Can only be used
        in combination with :ref:`CEC_MODE_NO_INITIATOR <CEC-MODE-NO-INITIATOR>`, otherwise
        the ``EINVAL`` error code will be returned. In 'monitor all' mode all messages
        this CEC device transmits and all messages it receives, including
        directed messages for other CEC devices, will be reported. This is
        very useful for debugging, but not all devices support this. This
```

```
mode requires that the :ref:`CEC_CAP_MONITOR_ALL <CEC-CAP-MONITOR-ALL>` capability is set,
otherwise the ``EINVAL`` error code is returned. This is only allowed if
the process has the ``CAP_NET_ADMIN`` capability. If that is not
set, then the ``EPERM`` error code is returned.
```

Core message processing details:

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\cec\[linux-master][Documentation][userspace-api][media][cec]cec-ioc-g-mode.rst, line 200)

Unknown directive type "tabularcolumns".

```
.. tabularcolumns:: |p{6.6cm}|p{10.9cm}|
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\cec\[linux-master][Documentation][userspace-api][media][cec]cec-ioc-g-mode.rst, line 204)

Unknown directive type "flat-table".

```
.. flat-table:: Core Message Processing
    :header-rows:  0
    :stub-columns: 0
    :widths: 1 8

    * .. _`CEC-MSG-GET-CEC-VERSION`:

      - ``CEC_MSG_GET_CEC_VERSION``
      - The core will return the CEC version that was set with
        :ref:`ioctl CEC_ADAP_S_LOG_ADDRS <CEC_ADAP_S_LOG_ADDRS>`,
        except when in passthrough mode. In passthrough mode the core
        does nothing and this message has to be handled by a follower
        instead.
    * .. _`CEC-MSG-GIVE-DEVICE-VENDOR-ID`:

      - ``CEC_MSG_GIVE_DEVICE_VENDOR_ID``
      - The core will return the vendor ID that was set with
        :ref:`ioctl CEC_ADAP_S_LOG_ADDRS <CEC_ADAP_S_LOG_ADDRS>`,
        except when in passthrough mode. In passthrough mode the core
        does nothing and this message has to be handled by a follower
        instead.
    * .. _`CEC-MSG-ABORT`:

      - ``CEC_MSG_ABORT``
      - The core will return a Feature Abort message with reason
        'Feature Refused' as per the specification, except when in
        passthrough mode. In passthrough mode the core does nothing
        and this message has to be handled by a follower instead.
    * .. _`CEC-MSG-GIVE-PHYSICAL-ADDR`:

      - ``CEC_MSG_GIVE_PHYSICAL_ADDR``
      - The core will report the current physical address, except when
        in passthrough mode. In passthrough mode the core does nothing
        and this message has to be handled by a follower instead.
    * .. _`CEC-MSG-GIVE-OSD-NAME`:

      - ``CEC_MSG_GIVE_OSD_NAME``
      - The core will report the current OSD name that was set with
        :ref:`ioctl CEC_ADAP_S_LOG_ADDRS <CEC_ADAP_S_LOG_ADDRS>`,
        except when in passthrough mode. In passthrough mode the core
        does nothing and this message has to be handled by a follower
        instead.
    * .. _`CEC-MSG-GIVE-FEATURES`:

      - ``CEC_MSG_GIVE_FEATURES``
      - The core will do nothing if the CEC version is older than 2.0,
        otherwise it will report the current features that were set with
        :ref:`ioctl CEC_ADAP_S_LOG_ADDRS <CEC_ADAP_S_LOG_ADDRS>`,
        except when in passthrough mode. In passthrough mode the core
        does nothing (for any CEC version) and this message has to be handled
        by a follower instead.
    * .. _`CEC-MSG-USER-CONTROL-PRESSED`:

      - ``CEC_MSG_USER_CONTROL_PRESSED``
      - If :ref:`CEC_CAP_RC <CEC-CAP-RC>` is set and if
        :ref:`CEC_LOG_ADDRS_FL_ALLOW_RC_PASSTHRU <CEC-LOG-ADDRS-FL-ALLOW-RC-PASSTHRU>`
        is set, then generate a remote control key
        press. This message is always passed on to the follower(s).
    * .. _`CEC-MSG-USER-CONTROL-RELEASED`:

      - ``CEC_MSG_USER_CONTROL_RELEASED``
      - If :ref:`CEC_CAP_RC <CEC-CAP-RC>` is set and if
        :ref:`CEC_LOG_ADDRS_FL_ALLOW_RC_PASSTHRU <CEC-LOG-ADDRS-FL-ALLOW-RC-PASSTHRU>`
        is set, then generate a remote control key
        release. This message is always passed on to the follower(s).
    * .. _`CEC-MSG-REPORT-PHYSICAL-ADDR`:

      - ``CEC_MSG_REPORT_PHYSICAL_ADDR``
      - The CEC framework will make note of the reported physical address
        and then just pass the message on to the follower(s).
```

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\cec\[linux-master][Documentation][userspace-api][media][cec]cec-ioc-g-mode.rst`, **line 279**); *backlink*
>
> Unknown interpreted text role "ref".

The :ref:`ioctl CEC_S_MODE <CEC_S_MODE>` can return the following error codes:

> **System Message: ERROR/3** (`D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\cec\[linux-master][Documentation][userspace-api][media][cec]cec-ioc-g-mode.rst`, **line 283**); *backlink*
>
> Unknown interpreted text role "ref".

EINVAL
: The requested mode is invalid.

EPERM
: Monitor mode is requested, but the process does have the `CAP_NET_ADMIN` capability.

EBUSY
: Someone else is already an exclusive follower or initiator.