

# Support Custom Remote Controller with Ubuntu 18.04

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## Install LIRC Package

```
$ sudo apt-get install lirc
```

## Configuring LIRC and driver module

Now you need to set up **lirc\_options.conf** to specify the configuration to run as a daemon.

```
$ sudo vi /etc/lirc/lirc_options.conf
```

lirc\_options.conf is generated by default when lirc is installed and the following parts are needed to be modified.

### (1) driver and device

```
driver          = default
device          = /dev/lirc0
```

### (2) module init

```
[modinit]
code = /sbin/modprobe meson-ir
```

### (3) input event

```
[lircd-uinput]
add-release-events = True
release-timeout    = 50
release-suffix     = _EVUP
```

All necessary configuration is done, you can simply start the service **lirc** by command line or reboot

the device.

```
$ sudo service lircd restart
$ sudo systemctl enable lircd-uinput
```

Then, you can find **lirc0** node under `/dev/`.

```
$ ls /dev/lirc*
/dev/lirc0
```

**Please note that some parts in `lirc_options.conf` depend on the toolchain version, so select the correct conf file among the following references based on your board.**

**lirc\_options.conf**

## ODROID-C2/N2/C4/HC4

[lirc\\_options.conf](#)

```
[lircd]
nodaemon          = False
driver            = default
device           = /dev/lirc0
output           = /var/run/lirc/lircd
pidfile          = /var/run/lirc/lircd.pid
plugindir        = /usr/lib/aarch64-linux-gnu/lirc/plugins
permission       = 666
allow-simulate   = No
repeat-max       = 600
#effective-user  =
#listen          = [address:]port
#connect         = host[:port]
#loglevel        = 6
#release         = true
#release_suffix  = _EVUP
#logfile         = ...
#driver-options  = ...

[lircmd]
uinput           = False
nodaemon         = False

[modinit]
code = /sbin/modprobe meson-ir

[lircd-uinput]
add-release-events = True
release-timeout    = 50
```

```
release-suffix = _EVUP
```

# ODROID-C1

[lirc\\_options.conf](#)

```
[lircd]
nodaemon      = False
driver        = default
device        = /dev/lirc0
output        = /var/run/lirc/lircd
pidfile       = /var/run/lirc/lircd.pid
plugindir     = /usr/lib/arm-linux-gnueabi/hf/lirc/plugins
permission    = 666
allow-simulate = No
repeat-max    = 600
#effective-user =
#listen       = [address:]port
#connect      = host[:port]
#loglevel     = 6
#release      = true
#release_suffix = _EVUP
#logfile      = ...
#driver-options = ...

[lircmd]
uinput        = False
nodaemon      = False

[modinit]
code = /sbin/modprobe meson-ir

[lircd-uinput]
add-release-events = True
release-timeout    = 50
release-suffix     = _EVUP
```

If you want to adjust a key release time, please change the value, **release-timeout** under [lircd-uinput] category.

## Registering Hardkernel remote controller

If you use a Hardkernel remote controller, you can use the following lircd.conf.  
Or please refer to the next section if you use other remote controllers.

```
$ sudo vi /etc/lirc/lircd.conf.d/hk.lircd.conf
```

[hk.lircd.conf](#)

```
begin remote

name odroid
bits 16
flags SPACE_ENC|CONST_LENGTH
eps 30
aeps 100

header 9000 4500
one 563 1688
zero 563 564
ptrail 563
pre_data_bits 16
pre_data 0x4DB2
repeat 9000 2250
repeat_gap 96187
toggle_bit_mask 0x0
  begin codes
    KEY_LEFT 0x9966
    KEY_RIGHT 0x837C
    KEY_UP 0x53AC
    KEY_DOWN 0x4BB4
    KEY_ENTER 0x738C
    KEY_HOME 0x41BE
    KEY_MUTE 0x11EE
    KEY_MENU 0xA35C
    KEY_BACK 0x59A6
    KEY_VOLUMEDOWN 0x817E
    KEY_VOLUMEUP 0x01FE
    KEY_POWER 0x3BC4
  end codes
end remote
```

## Registering custom remote controller

Before starting irrecord, please check if lircd service is running and stop the service first.

```
$ sudo service lircd stop
```

If lircd service is loaded, you will have the following error message from irrecord.

```
Warning: Running as root.
Using driver default on device /dev/lirc0
Could not init hardware (lircd running ? --> close it, check
permissions)
```

**Lirc** package provide a tool, **irrecord**, to help registering the buttons of own remote controller. Once the tool is started, for example, you will be asked to press the buttons and it will analyse the signals of your remote controller like protocol type or headers. After this analysis you can start register the buttons one by one.

```
$ sudo irrecord --device /dev/lirc0 lircd.conf
```

Once signal analysis is done, you will be asked with the message below to enter the button name to register and press the applicable button. In this step, you can register many buttons as much as you expect to register. If you done, just press enter key on the prompt.

```
Please enter the name for the next button (press <ENTER> to finish
recording)
```

The tool would ask you more steps to finalize and store the configuration file with the below message.

```
Successfully written config file.
```

For example, if you have done whole steps successfully with Hardkernel's stock remote controller, your will have the configuration file like below very similiary.

Now you must copy the configuration file, **lircd.conf**, to **/etc/lirc/** so that **lirc** service can recognize the button.

```
$ sudo cp lircd.conf /etc/lirc/lircd.conf.d/hk.lircd.conf
```

## Restart lirc services

Then, you need to restart **lircd** and **lircd-uinput**.

```
$ sudo service lircd restart
$ sudo systemctl enable lircd-uinput
$ sudo service lircd-uinput restart
```

## How to test

Now, you can run **irw** to confirm your ODROID-C2 is ready.

```
odroid@odroid64:~# irw
000000004db29966 00 KEY_LEFT lircd.conf
000000004db2837c 00 KEY_RIGHT lircd.conf
000000004db253ac 00 KEY_UP lircd.conf
000000004db24bb4 00 KEY_DOWN lircd.conf
000000004db2738c 00 KEY_ENTER lircd.conf
```

You can check if the daemon is running properly.

```
$ ps -ax | grep lirc
root      536  0.0  0.0  4804  1400 ?        Ss   09:39   :00
/usr/sbin/lircmd --nodaemon
root      580  0.0  0.0  4720  1296 ?        Ss   09:39   :00
/usr/bin/irexec /etc/lirc/irexec.lircrc
root      727  0.1  0.2  7456  4056 ?        Ss   09:39   :00
/usr/sbin/lircd --nodaemon
root      728  0.0  0.0  4808  1376 ?        Ss   09:39   :00
/usr/sbin/lircd-uinput
odroid   1216  0.0  0.0  2704   664 ttyS0    S+   09:40   :00 grep --
color=auto lirc
```

As well as necessary drivers are loaded.

```
$ lsmod
Module                Size  Used by
ir_lirc_codec         4934   3
lirc_dev              10879   1 ir_lirc_codec
ir_mce_kbd_decoder    3402
ir_jvc_decoder        1725
ir_sanyo_decoder      1657
ir_sony_decoder       1663
ir_rc6_decoder        2010
ir_nec_decoder        1789
ir_rc5_decoder        1586
meson_ir              3356
```

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