

Step by Step guide to setup IR receiver

Make sure you have installed OS for PiPocket, If not follow guide here =>

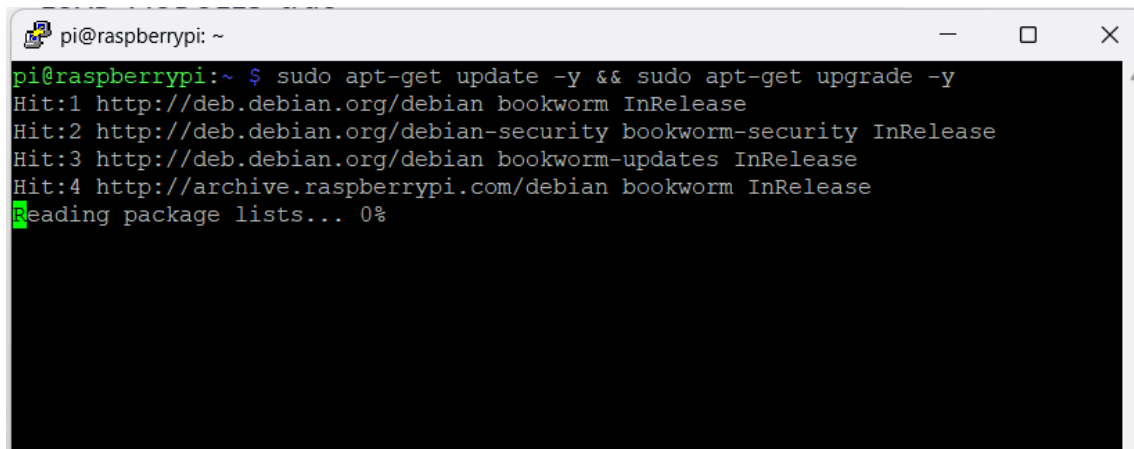
Instruction below is setup for 64bit bookworm OS and model CM4, make necessary changes if using with other configuration

Step 1: First update and install LIRC package

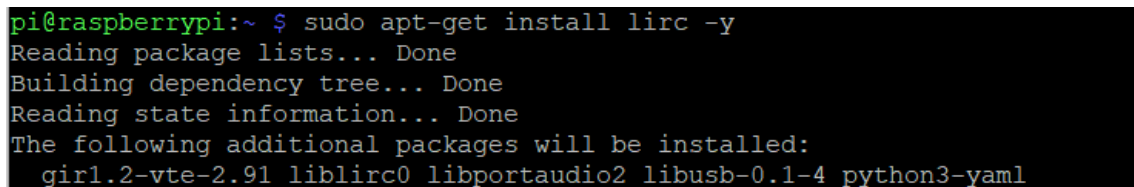
Run command to update and upgrade, after that install lirc package

sudo apt-get update -y && sudo apt-get upgrade -y

sudo apt-get install lirc -y



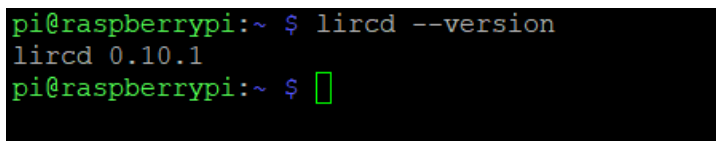
```
pi@raspberrypi: ~  
pi@raspberrypi:~ $ sudo apt-get update -y && sudo apt-get upgrade -y  
Hit:1 http://deb.debian.org/debian bookworm InRelease  
Hit:2 http://deb.debian.org/debian-security bookworm-security InRelease  
Hit:3 http://deb.debian.org/debian bookworm-updates InRelease  
Hit:4 http://archive.raspberrypi.com/debian bookworm InRelease  
Reading package lists... 0%
```



```
pi@raspberrypi:~ $ sudo apt-get install lirc -y  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
The following additional packages will be installed:  
  gir1.2-vte-2.91 liblirc0 libportaudio2 libusb-0.1-4 python3-yaml
```

You can confirm with below version check command,

\$ lircd --version

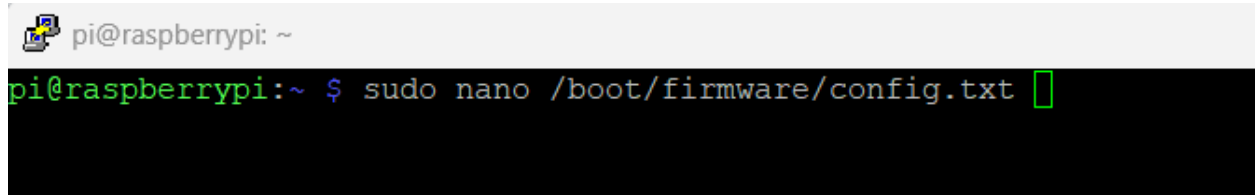


```
pi@raspberrypi:~ $ lircd --version  
lircd 0.10.1  
pi@raspberrypi:~ $
```

Step 2: Configure and Setup LIRC for IR Remote control

First we need to enable infrared communication, for this open config.txt file

\$ sudo nano /boot/firmware/config.txt

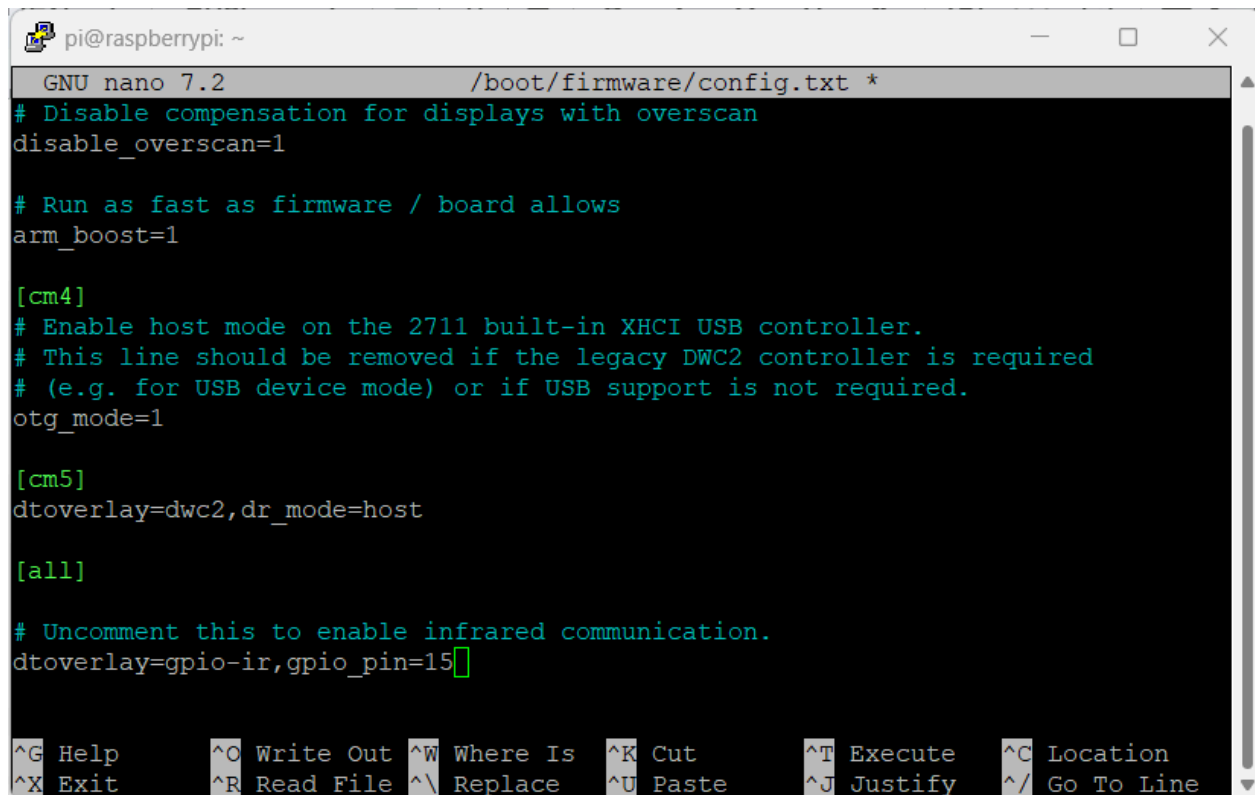
A terminal window on a Raspberry Pi. The prompt is 'pi@raspberrypi: ~'. The command 'sudo nano /boot/firmware/config.txt' has been entered, and a green cursor is at the end of the line.

```
pi@raspberrypi: ~  
pi@raspberrypi:~ $ sudo nano /boot/firmware/config.txt
```

and add below lines and save exit =>

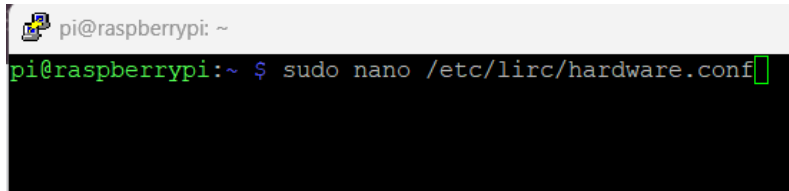
Uncomment this to enable infrared communication.

dtoverlay=gpio-ir,gpio_pin=15

A terminal window showing the nano text editor editing /boot/firmware/config.txt. The file content includes comments about overscan, arm_boost, USB controller, and the infrared communication line which is being edited. The bottom of the screen shows nano editor shortcuts.

```
GNU nano 7.2 /boot/firmware/config.txt *  
# Disable compensation for displays with overscan  
disable_overscan=1  
  
# Run as fast as firmware / board allows  
arm_boost=1  
  
[cm4]  
# Enable host mode on the 2711 built-in XHCI USB controller.  
# This line should be removed if the legacy DWC2 controller is required  
# (e.g. for USB device mode) or if USB support is not required.  
otg_mode=1  
  
[cm5]  
dtoverlay=dwc2,dr_mode=host  
  
[all]  
  
# Uncomment this to enable infrared communication.  
dtoverlay=gpio-ir,gpio_pin=15  
  
^G Help      ^O Write Out  ^W Where Is   ^K Cut        ^T Execute    ^C Location  
^X Exit      ^R Read File  ^\ Replace    ^U Paste      ^J Justify    ^/ Go To Line
```

\$ sudo nano /etc/lirc/hardware.conf



```
pi@raspberrypi: ~  
pi@raspberrypi:~ $ sudo nano /etc/lirc/hardware.conf
```

Enter below text, then save and exit,

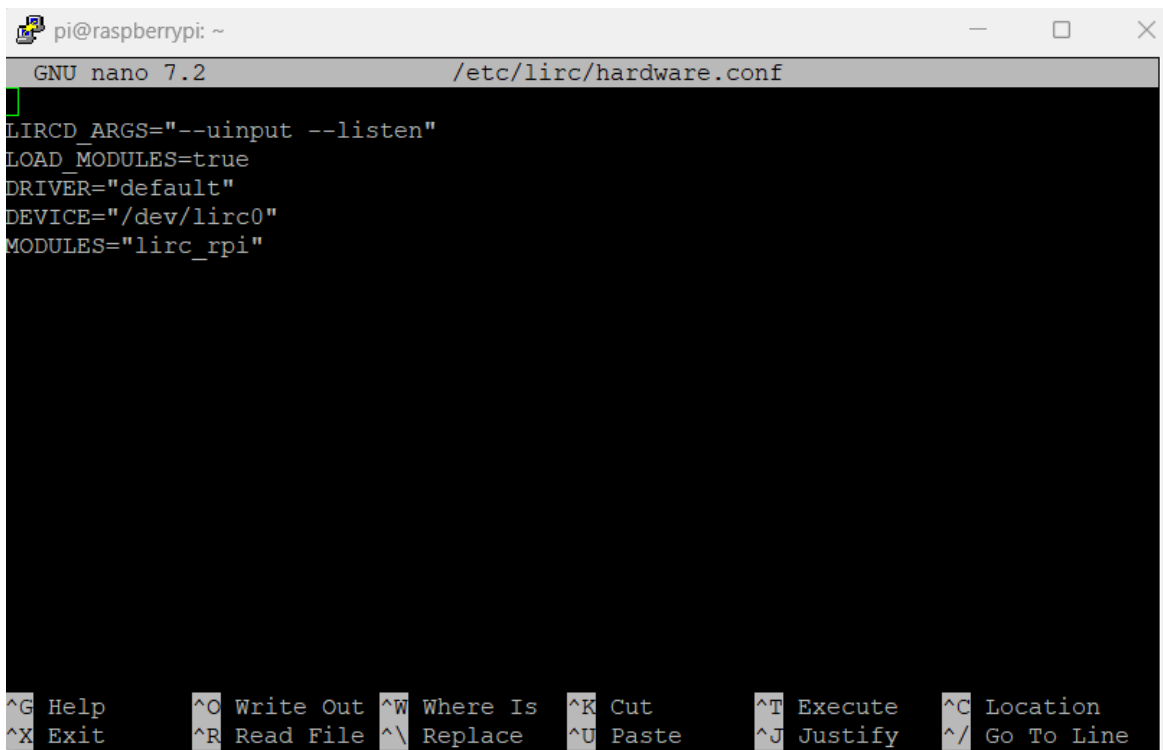
LIRCD_ARGS="--uinput --listen"

LOAD_MODULES=true

DRIVER="default"

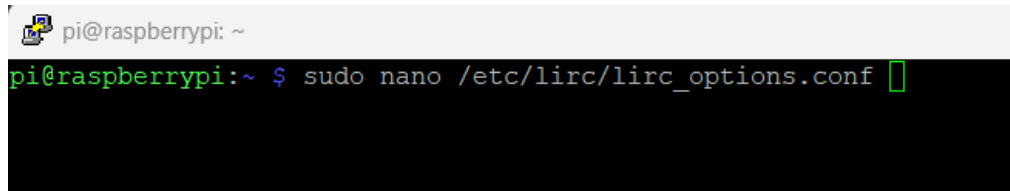
DEVICE="/dev/lirc0"

MODULES="lirc_rpi"



```
pi@raspberrypi: ~  
GNU nano 7.2 /etc/lirc/hardware.conf  
LIRCD_ARGS="--uinput --listen"  
LOAD_MODULES=true  
DRIVER="default"  
DEVICE="/dev/lirc0"  
MODULES="lirc_rpi"  
  
^G Help      ^O Write Out ^W Where Is  ^K Cut       ^T Execute   ^C Location  
^X Exit      ^R Read File ^\ Replace   ^U Paste     ^J Justify   ^/ Go To Line
```

Now update LIRC module options configure,
\$ **sudo nano /etc/lirc/lirc_options.conf**



```
pi@raspberrypi: ~  
pi@raspberrypi:~ $ sudo nano /etc/lirc/lirc_options.conf
```

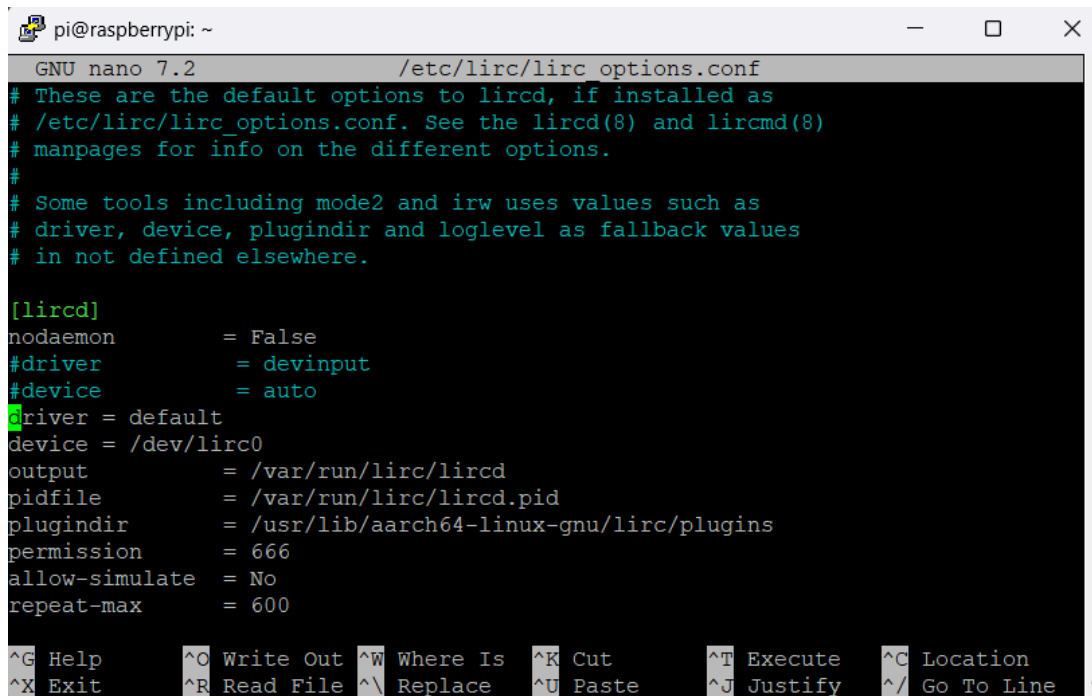
Change both **driver** and **device** values (line #3-4).

#driver = devinput

#device = auto

driver = default

device = /dev/lirc0



```
pi@raspberrypi: ~  
GNU nano 7.2 /etc/lirc/lirc_options.conf  
# These are the default options to lircd, if installed as  
# /etc/lirc/lirc_options.conf. See the lircd(8) and lircmd(8)  
# manpages for info on the different options.  
#  
# Some tools including mode2 and irw uses values such as  
# driver, device, plugindir and loglevel as fallback values  
# in not defined elsewhere.  
  
[lircd]  
nodaemon      = False  
#driver        = devinput  
#device        = auto  
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  
  
^G Help      ^O Write Out ^W Where Is  ^K Cut       ^T Execute   ^C Location  
^X Exit      ^R Read File ^\ Replace   ^U Paste     ^J Justify   ^_ Go To Line
```

Once you've finished then save and exit, reboot Raspberry Pi to recognize the new bootloader.

\$ **sudo reboot**

Check status with below running command,

\$ sudo /etc/init.d/lircd status

```
pi@raspberrypi:~$ sudo /etc/init.d/lircd status
● lircd.service - Flexible IR remote input/output application support
   Loaded: loaded (/lib/systemd/system/lircd.service; enabled; preset: enabled)
   Active: active (running) since Sat 2025-02-01 01:53:55 EST; 1min 5s ago
 TriggeredBy: ● lircd.socket
    Docs: man:lircd(8)
          http://lirc.org/html/configure.html
   Main PID: 633 (lircd)
     Tasks: 2 (limit: 447)
        CPU: 97ms
    CGroup: /system.slice/lircd.service
           └─633 /usr/sbin/lircd --nodaemon

Feb 01 01:53:55 raspberrypi lircd[633]: lircd-0.10.1[633]: Notice: /etc/lircd.conf: GER
Feb 01 01:53:55 raspberrypi lircd[633]: lircd-0.10.1[633]: Notice: /etc/lircd.conf: PPY1
Feb 01 01:53:55 raspberrypi lircd-0.10.1[633]: Notice: /etc/lircd.conf: PEN
Feb 01 01:53:55 raspberrypi lircd-0.10.1[633]: Notice: /etc/lircd.conf: GER
Feb 01 01:53:55 raspberrypi lircd-0.10.1[633]: Notice: /etc/lircd.conf: PY1
Feb 01 01:53:55 raspberrypi lircd[633]: lircd-0.10.1[633]: Notice: /etc/lircd.conf: HEEL
Feb 01 01:53:55 raspberrypi lircd-0.10.1[633]: Notice: /etc/lircd.conf: EEL
Feb 01 01:53:55 raspberrypi lircd[633]: lircd-0.10.1[633]: Notice: lircd(default) ready, rcd
Feb 01 01:53:55 raspberrypi systemd[1]: Started lircd.service - Flexible IR remote.
Hint: Some lines were ellipsized, use -l to show in full.
pi@raspberrypi:~$
```

Step: Testing IR Remote commands

To test IR detection enter below command, hit enter and start pressing any button on IR remote

\$ sudo mode2 -m -d /dev/lirc0

```
pi@raspberrypi:~$ sudo mode2 -m -d /dev/lirc0
Using driver default on device /dev/lirc0
Trying device: /dev/lirc0
Using device: /dev/lirc0
Running as regular user pi
16777215

 9007   4516   570   1668   549   1694
 578   1665   551   1695   571   539
 548   564   547   1696   547   564
 549   564   574   539   548   564
 572   540   549   1694   550   562
 547   1696   550   562   572   541
 548   564   551   1692   550   563
 546   1698   548   566   546   565
 550   561   546   1696   547   1698
 549   562   548   1696   549   562
 547   1694   552   1692   548   1689
 546 131027-pulse 16777215-space

 891   1092   140   1675   111 11959

 138   4456   161   1975   240   764
 281   807   138   2367   140 7515
 271   848   234 1999   219 3193
 69   2227   163 2005   193 2182
 115 1747   402 2960   296 2159
 107 1922   431 945    74 2079
 282 1952   291 1909   301 132827-pulse 2296002-space

2409948-space

 102   360   139 12897

 68   2118   75 25484

 110 3534   72 79301

 65 11054

 108 14612

 137 6324   72 5711   135 5308
 109 130968-pulse
```