

Una guía:

BlueALSA (formerly know as BluezALSA)

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Una guía:

https://www.sigmdel.ca/michel/ha/rpi/bluetooth_01_en.html

1) Para que la RPI no pueda acceder a la SIM de un telefono paired, editar la siguiente línea de

```
/lib/systemd/system/bluetooth.service  
ExecStart=/usr/lib/bluetooth/bluetoothd --noplugin=sap
```

2) Añadir el usuario al grupo bluetooth

```
sudo adduser usuario bluetooth
```

3) Emparejar, confiar y conectar con nuestro dispositivo

```
$ bluetoothctl  
[NEW] Controller 00:1A:7D:DA:71:13 rpi2fir [default]  
[NEW] Device 54:E4:3A:1E:FC:92 iPhone  
[bluetooth]# agent on  
Agent registered  
[bluetooth]# scan on  
Discovery started  
[CHG] Controller 00:1A:7D:DA:71:13 Discovering: yes
```

```

[CHG] Device 54:E4:3A:1E:FC:92 RSSI: -43
[bluetooth]# pair 54:E4:3A:1E:FC:92          ← Emparejar
Attempting to pair with 54:E4:3A:1E:FC:92
Failed to pair: org.bluez.Error.AlreadyExists ← Ya lo habíamos emparejado ;-)
[bluetooth]# connect 54:E4:3A:1E:FC:92
Attempting to connect to 54:E4:3A:1E:FC:92   ← Conectar tb en el teléfono
[CHG] Device 54:E4:3A:1E:FC:92 Connected: yes
[iPhone]# trust 54:E4:3A:1E:FC:92           ← Confiar
Changing 54:E4:3A:1E:FC:92 trust succeeded
[iPhone]# quit
Agent unregistered
[DEL] Controller 00:1A:7D:DA:71:13 rpi2fir [default]
$

```

BlueALSA (formerly know as BluezALSA)

<https://github.com/Arkq/bluez-alsa>

<https://forum.armbian.com/topic/6480-bluealsa-bluetooth-audio-using-alsa-not-pulseaudio/>

Se supone que tenemos BlueALSA as background task:
 bluealsa --disable-hfp &

Se entiende que el 'usuario' pertenece al grupo 'audio'

Final Note: Bluealsa and PulseAudio do not play well together. You will have to completely uninstall PulseAudio and all its baggage in order to use bluealsa. O por lo menos Bluetooth support has to be disabled in the PulseAudio, any Bluetooth related module has to be unloaded.

Note: Given your bluetooth device is a virtual device, it will not be listed when you run aplay -l or similar listing commands.

Comandos Bluetooth:

\$ echo help | bluetoothctl

```

[bluetooth]# help
Available commands:
list                List available controllers
show [ctrl]        Controller information
select <ctrl>       Select default controller
devices            List available devices
paired-devices      List paired devices
power <on/off>      Set controller power
pairable <on/off>   Set controller pairable mode
discoverable <on/off> Set controller discoverable mode
agent <on/off/capability> Enable/disable agent with given capability
default-agent       Set agent as the default one

```

```

advertise <on/off/type>    Enable/disable advertising with given type
set-advertise-uuids [uuid1 uuid2 ...] Set advertise uuids
set-advertise-service [uuid][data=[xx xx ...] Set advertise service data
set-advertise-manufacturer [id][data=[xx xx ...] Set advertise manufacturer
data
set-advertise-tx-power <on/off> Enable/disable TX power to be advertised
set-scan-filter-uuids [uuid1 uuid2 ...] Set scan filter uuids
set-scan-filter-rssi [rssi] Set scan filter rssi, and clears pathloss
set-scan-filter-pathloss [pathloss] Set scan filter pathloss, and clears rssi
set-scan-filter-transport [transport] Set scan filter transport
set-scan-filter-clear      Clears discovery filter.
scan <on/off>              Scan for devices
info [dev]                Device information
pair [dev]                Pair with device
trust [dev]               Trust device
untrust [dev]             Untrust device
block [dev]               Block device
unblock [dev]             Unblock device
remove <dev>              Remove device
connect <dev>             Connect device
disconnect [dev]          Disconnect device
list-attributes [dev]     List attributes
set-alias <alias>         Set device alias
select-attribute <attribute> Select attribute
attribute-info [attribute] Select attribute
read                      Read attribute value
write <data=[xx xx ...]>  Write attribute value
notify <on/off>           Notify attribute value
register-profile <UUID ...> Register profile to connect
unregister-profile         Unregister profile
version                   Display version
quit                     Quit program

```

\$ hcitool

hcitool - HCI Tool ver 5.43

Usage:

```
hcitool [options] <command> [command parameters]
```

Options:

```
--help      Display help
-i dev      HCI device
```

Commands:

```
dev  Display local devices
inq  Inquire remote devices
scan Scan for remote devices
name Get name from remote device
info Get information from remote device
spinq Start periodic inquiry
epinq Exit periodic inquiry
cmd  Submit arbitrary HCI commands
con  Display active connections
cc   Create connection to remote device
dc   Disconnect from remote device

```

```

sr      Switch master/slave role
cpt     Change connection packet type
rsssi   Display connection RSSI
lq      Display link quality
tpl     Display transmit power level
afh     Display AFH channel map
lp      Set/display link policy settings
lst     Set/display link supervision timeout
auth    Request authentication
enc     Set connection encryption
key     Change connection link key
clkoff  Read clock offset
clock   Read local or remote clock
lescan  Start LE scan
leinfo  Get LE remote information
lewldd  Add device to LE White List
lewlrn  Remove device from LE White List
lewlsz  Read size of LE White List
lewlclr Clear LE White List
lerldd  Add device to LE Resolving List
lerlrn  Remove device from LE Resolving List
lerlclr Clear LE Resolving List
lerlsz  Read size of LE Resolving List
lerlon  Enable LE Address Resolution
lerloff Disable LE Address Resolution
lecc    Create a LE Connection
ledc    Disconnect a LE Connection
lecup   LE Connection Update

```

For more information on the usage of each command use:
 hcitool <command> --help

\$ hcitool con

Connections:

```
> ACL 54:E4:3A:1E:FC:92 handle 70 state 1 lm SLAVE AUTH ENCRYPT
```

--- PAIRING a BT Device:

```

bluetoothctl >
scan on
[NEW] Device 30:23:23:F4:48:2C TH-S10U
scan off
pair 30:23:23:F4:48:2C
trust 30:23:23:F4:48:2C
exit

```

After that power off&on the bt-device and the device will connect automatically as a trusted device.

Before we try our first audio-command we had to export one thing to make BlueALSA mor system-friendly:
export LIBASOUND_THREAD_SAFE=0

--- PLAYING Text to speech:

```
speak "Hello, how are you?" -w /home/guido/espeak.wav -s145  
aplay -D bluealsa:HCI=hci0,DEV=30:23:23:F4:48:2C,PROFILE=a2dp -@  
/home/guido/espeak.wav
```

--- PLAYING Internetradio:

```
mpg123 -a bluealsa:HCI=hci0,DEV=30:23:23:F4:48:2C,PROFILE=a2dp -@  
/home/guido/ffh80s.pls
```

--- ASOUNDRC for PLAYING

~/.asoundrc with the following content:

```
defaults.bluealsa.interface "hci0"  
defaults.bluealsa.device "30:23:23:F4:48:2C"  
defaults.bluealsa.profile "a2dp"  
defaults.bluealsa.delay 10000
```

Then:

```
mpg123 -a bluealsa -@ /home/guido/ffh80s.pls
```

--- VOLUME

For set the volume of such a device you have to know the "real" name of the device out of the bluetoothctl and the name of the used protocol:

Device: 30:23:23:F4:48:2C TH-S10U

Protocol: A2DP

```
amixer -D bluealsa sset 'TH-S10U - A2DP ' 70%
```

--- Ver los devices BT

```
$ echo -e "devices\nquit" | bluetoothctl  
[NEW] Controller 00:1A:7D:DA:71:13 wpi [default]  
[NEW] Device 54:E4:3A:1E:FC:92 iPhone  
[bluetooth]# devices  
Device 54:E4:3A:1E:FC:92 iPhone  
[bluetooth]# quit  
[DEL] Controller 00:1A:7D:DA:71:13 wpi [default]
```

--- AUTOCONNECT

After starting bluealsa and then a moment later the BT-device will auto-connect if trusted:

```
Device 30:21:8E:AA:4C:45 ML-28U
Device 30:23:23:F4:48:2C TH-S10U
Device 00:11:67:3F:9B:18 BTLS9001
```

If you didnt want to auto-connect or it wouldnt autoconnect you can connect to a paired&trusted BT-Speaker with the command:

```
echo -e "connect 00:11:67:3F:9B:18\nquit" | bluetoothctl
```

Disconnect is the same:

```
echo -e "disconnect 00:11:67:3F:9B:18\nquit" | bluetoothctl
```

You could also change the commandline here for pairing or trusting a device like

```
echo -e "pair 00:11:67:3F:9B:18\ttrust 00:11:67:3F:9B:18\nquit" | bluetoothctl
```

--- CAPTURING

To capture audio from the connected Bluetooth device:

```
$ arecord -D bluealsa capture.wav
```

```
$ arecord -D bluealsa:HCI=hci0,DEV=XX:XX:XX:XX:XX:XX,PROFILE=sco test.wav
```

```
$ arecord -D bluealsa:HCI=hci0,DEV=54:E4:3A:1E:FC:92 -r44100 -c2 | aplay -D jack &
```

Nótese que arecord y aplay harán resampling automático salvo que se inhiba.

--- PARA VER SI UN DEVICE ESTÁ CONECTADO

```
$ echo -e "paired-devices\nquit" | bluetoothctl
[NEW] Controller 00:1A:7D:DA:71:13 wpi [default]
[NEW] Device 54:E4:3A:1E:FC:92 iPhone
[bluetooth]# paired-devices
Device 54:E4:3A:1E:FC:92 iPhone
[bluetooth]# quit
[DEL] Controller 00:1A:7D:DA:71:13 wpi [default]
```

\$

```
$ echo -e "info 54:E4:3A:1E:FC:92\nquit" | bluetoothctl
```

```
[NEW] Controller 00:1A:7D:DA:71:13 wpi [default]
```

```
[NEW] Device 54:E4:3A:1E:FC:92 iPhone
```

```
[bluetooth]# info 54:E4:3A:1E:FC:92
```

```
Device 54:E4:3A:1E:FC:92
```

```
Name: iPhone
```

```
Alias: iPhone
```

```
Class: 0x7a020c
```

```
Icon: phone
```

```
Paired: yes
```

```
Trusted: yes
```

```
Blocked: no
```

```
Connected: no
```

```
LegacyPairing: no
```

```
UUID: Vendor specific (00000000-deca-fade-deca-deafdecacafe)
```

```
UUID: Service Discovery Serve.. (00001000-0000-1000-8000-00805f9b34fb)
```

```
UUID: Audio Source (0000110a-0000-1000-8000-00805f9b34fb)
```

```
UUID: A/V Remote Control Target (0000110c-0000-1000-8000-00805f9b34fb)
```

```
UUID: Advanced Audio Distribu.. (0000110d-0000-1000-8000-00805f9b34fb)
```

```
UUID: A/V Remote Control (0000110e-0000-1000-8000-00805f9b34fb)
```

```
UUID: NAP (00001116-0000-1000-8000-00805f9b34fb)
```

```
UUID: Handsfree (0000111e-0000-1000-8000-00805f9b34fb)
```

```
UUID: Handsfree Audio Gateway (0000111f-0000-1000-8000-00805f9b34fb)
```

```
UUID: Phonebook Access Server (0000112f-0000-1000-8000-00805f9b34fb)
```

```
UUID: Message Access Server (00001132-0000-1000-8000-00805f9b34fb)
```

```
UUID: PnP Information (00001200-0000-1000-8000-00805f9b34fb)
```

```
UUID: Vendor specific (02030302-1d19-415f-86f2-22a2106a0a77)
```

```
Modalias: bluetooth:v004Cp6D03d0B20
```

```
[bluetooth]# quit
```

```
[DEL] Controller 00:1A:7D:DA:71:13 wpi [default]
```

\$

