

# SimpleUSB Channel Driver

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# 1 SimpleUSB Channel Driver

**Legacy Version** - This page is about a legacy version of AllStarLink. See <sup>1</sup>

chan\_simpleusb is ideal for smaller computers and those systems that do not need the USBRadio Channel Driver<sup>2</sup>.

You must enable chan\_simpleusb.so load in modules.conf.

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1 <https://allstarlink.github.io/adv-topics/usbinterfaces/>

2 [https://wiki.allstarlink.org/wiki/USBRadio\\_Channel\\_Driver](https://wiki.allstarlink.org/wiki/USBRadio_Channel_Driver)



## 2 simpleusb.conf

The configuration of chan\_simpleusb is done with the simpleusb.conf file and is self explanatory:

```
; SimpleUSB configuration
;
[general]

[usb_<node#>]

eeprom = 0                ; EEPROM installed: 0,1
                          ; 0 = no (default)
                          ; 1 = yes

hdwtype = 0                ; Leave this set to 0 for USB sound fobs
modified using             ; the instructions from usbfbob.pdf. Use a
setting of                 ; 1 is for Dingotel/Sph interfaces.

rxboost = 0                ; 0 = 20db attenuator inserted, 1= 20db
attenuator removed        ; Set to 1 for additional gain if using a
low-level receiver output

carrierfrom = usbinvert    ; no,usb,usbinvert
                          ; no - no carrier detection at all
                          ; usb - from the COR line on the USB sound
fob (Active high)         ; usbinvert - from the inverted COR line on
the USB sound fob (Active low)

ctcssfrom = usbinvert     ; no,usb,usbinvert
                          ; no - CTCSS decoding, system will be
carrier squelch           ; usb - CTCSS decoding using input from USB
sound fob (Active high)   ; usbinvert - from the inverted CTCSS line
on the USB sound fob (Active low)

deemphasis = no           ; enable de-emphasis (input from
discriminator)

plfilter = yes            ; enable PL filter

rxondelay = 0              ; Number of 20mSec intervals following the
release of PTT.
"Ping Ponging"           ; Uncomment and/or adjust for simplex nodes to eliminate
usbradio                 ; or "Relay Racing". A positive value here will instruct the
20mSec                   ; driver to ignore the COR line for a specified number of
simplex                   ; intervals following the release of PTT. Use this ONLY on
```

```
duplex nodes. ; nodes, and leave commented out for repeaters or other full

txoffdelay = 0 ; Ignore the receiver for a specified number
of 20 millisecond ; intervals after the transmitter unkeys.
; This is useful when setting up a half-duplex link with an
existing ; repeater, where you need to ignore the repeater's
hangtime.

txmixa = voice ; Left channel output (A): no,voice
; no - Do not output anything
; voice - output voice only

txmixb = no ; Right channel output (B): no,voice
; no - Do not output anything
; voice - output voice only

txboost = 0

invertptt = 0 ; Invert PTT: 0,1
; 0 - ground to transmit
; 1 - open to transmit

preemphasis = 0 ; Perform standard 6db/octave pre-emphasis

; pager = no ; no,a,b (e.g. pager = b means "put the
normal repeat audio on channel A, and the pager audio on channel B")

duplex3 = 0 ; duplex 3 gain setting (0 to disable)
; when enabled, connects the receive audio
from the sound card directly to the transmit audio.
```

# 3 Configuration

## 3.1 Parallel Port

When setting chan\_simpleusb to use a parallel port for I/O you must set a definition for the port address in rpt.conf:

```
iobase=0x378      ; Parallel port address (using for cor/ptt & switches +dh-rbi  
- 378,278,3bc common Lpt 1,2,3
```

You must then define the parallel port pins used for I/O in simpleusb.conf:

```
[usb_<node#1>] ( ie [usb_1234] )  
pp6=ptt  
pp15=ctcss (valid ctcss signal from ext hardware 0/5v)  
pp11=cor  
carrierfrom=ppinvert (could also be ctcss or ctcssinvert or pp)  
...( + additional info for this nodes usb config)...
```

```
[usb_<node#2>]  
pp7=ptt  
pp12=cor  
pp14=ctcss  
carrierfrom=ctcss
```

...( + additional info for this nodes usb config)...

## 3.2 Node Number Configuration

When configuring your simpleusb radio node you **MUST** ensure that the name of the radio is the same in both rpt.conf and simpleusb.conf. The system looks inside the file SimpleUSB.conf for the match of the node# to be configured (i.e. usb\_1234).

Node names are in format of *usb\_<nodenumber>*. Where <nodenumber> = the AllStar Link node of your system. *Note that usb and the node number are separated by an underscore ( \_ ) character.*

Example:

Your simpleusb.conf file defines your usb radio as **[usb\_1000]**. Your rpt.conf file would then have:

```
rxchannel = SimpleUSB/usb_1000
```

If you are reusing the `simpleusb.conf` file from an older installation (i.e., ACID), take special note of the change in naming. When a exact match is not made, the settings that follow will not be loaded.

### 3.3 Sound Card Audio Buffers

On some systems, the sound card driver buffers may need to be adjusted. If you see messages like `soundcard_writeframe: Channel usb_1999: Sound device write buffer overflow - used 6 blocks`, the number of allocated buffers is not sufficient. Increasing the **queuesize** may be needed.

The following entries can be added to `usbradio.conf`.

```
queuesize = 5           ; number of buffers
frags = 1966092         ; request 30 buffers (fragments) of size 4096
```

**queuesize** specifies the maximum number of driver buffers that can be used before reporting a buffer overflow. This value should be 1 less than the number of buffers requested with **frags**. The default value is 5.

**frags** specifies the number of buffers and buffer size to allocate. This is a 4-byte value. The first 2-bytes specify the number of buffers. The second 2-bytes specify the size of the buffer. The buffer size is 2 raised to the value specified.

The default frags value is **001E000C** hex (1966092 decimal). **001E** is 30 decimal. This asks for 30 buffers. **000C** is 12 decimal. This requests 2 raised to the power of 12, which is 4096 bytes. The value 1966092 decimal (001E000C hex) requests that the sound card driver give `chan_simpleusb` 30 buffers that are 4096 bytes in length.

The **queuesize** should always be greater than 1.

## 4 Miscellaneous

Parallel Port Addressing:

A line is required in your node stanza in RPT.conf to access the parallel port in the software.

iobase=0x378 ; Parallel port address

Settings are 0x378 = LPT1, 0x278 = LPT2, 0x3bc = LPT3

You can have more than one, but you need to place them in other node stanza's addressed separately. Note: Some older systems plug and play can have issues addressing these. If so, go to bios setup and address them manually. This will prevent the system from changing the address.

### 4.1 Parallel Port Pin Numbers

Additional note on parallel port pin numbers:

When you are looking at the **pp#** addressing, the actual hardware pin numbers are in computer natural logical format.

So hardware pin *D0* on the LPT port is equal to *pp1* in the software configuration.

"0" is the first number to a computer as seen at the BIOS and/or hardware addressing.

Be sure you are testing/setting/attaching the correct pin number.

Here is a listing of hardware pins and the software setup equivalents:

Hardware pin	Software equivalent
D0	pp1
D1	pp2
D2	pp3
D3	pp4
D4	pp5
D5	pp6
D6	pp7
D7	pp8

Allstar denoted pins pp9 through pp12 are 'Input pins' listed as 'A#' in the parallel port scheme.

Special note: All these pins require 'buffering' by adding a transistor to do the actual switching. They will not sink much current on their own. While these port pins vary, most will only sink about 20ma-50ma of current. In the case of some older radios you might interface, you might need to buffer with a transistor (2n2222 / 3904/3906) AND/OR a relay actuated by the buffer transistor. Mainly the PTT lines.

The best design is with optically-coupled transistors to prevent voltages and/or rf from running back through this port. The unused output pins can be applied to switch things at the site. i.e. fan/light/alarm or even switching off other equipment. It is not advisable to work a relay coil directly with a PP pin. It is a coil and susceptible to absorbing RF and there is no quicker way to lock a computer up than to bugger this input/output with a stray signal.

Final Note: If you think you might be adding a Doug Hall RBI-1 Remote base later, Start populating pins 'above' pp3 reserving the 1st 3 pins.

Check command tables for info, not related to simple\_usb.conf.

## 4.2 Contributors

- KB4MDD<sup>1</sup>
- KB8JNM<sup>2</sup>
- N8EI<sup>3</sup>
- WA3WCO<sup>4</sup>
- This page was last edited on 29 June 2024, at 23:33.

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1 <https://wiki.allstarlink.org/index.php?title=User:KB4MDD&action=edit&redlink=1>

2 <https://wiki.allstarlink.org/index.php?title=User:KB8JNM&action=edit&redlink=1>

3 <https://wiki.allstarlink.org/index.php?title=User:N8EI&action=edit&redlink=1>

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Edits User



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<sup>1</sup> Chapter 6 on page 17





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