

**Ham 45G – ASL Firmware: simpleusb & rpt.conf**  
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1. AllStarLink (ASL) uses app\_rpt is a shell around Asterisk, a software PBX system, built on the Linux Operating System. Managing connected devicesected to the Pi requires several configuration files.
  - a. Normal set-up configures many of these in general.
  - b. In other articles, we have looked at changes to simple-usb-menu and simpleusb.conf.
  - c. The Nano editor for Linux is simple text. (^+sh+c = copy). Other commands are at page bottom.
  - d. [simpleusb.conf](#) for USB and [rpt.conf](#) for repeater connections require individual, unique settings.
  - e. See Ham 45D for COS setup in these same files.
  - f. Once changed, restart AllStar or Reload: *CLI> rpt reload <enter> CLI> exit.*

2. *PuTTY > Login > ASL Main Menu > 6 – ASL Configuration Edit Menu > Edit \*.conf*
3. [simpleusb.conf](#) handles Tx and Rx audio as well as the PTT / COS switch between them.

- a. This is digital signal processing before the level adjust.
- b. Various devices connected to the in and out need a variety of settings.
- c. 'rxboost' inserts attenuation on the incoming line. 'deemphasis' changes sound quality.
- d. 'txboost' inserts attenuation on the outgoing line. 'preemphasis' changes sound quality.
- e. Levels adjust in simpleusb-menu.
- f. Speaker on/off, 'duplex' = 0 cuts off speaker while talking, = 1 leaves speaker active.
- g. This is different from rpt setting where duplex controls the radio.

4. Audio issues

- a. DTMF are Rx tones from mic keypad are low and inaudible, but still work.
- b. Detection of the tones changes as Rx audio settings vary.
- c. Microphones impedance is about 800 Ohms, speakers about 8 Ohms.
- d. Distortion and low-level results if these are not matched in the audio interface board.
- e. The fix is a simple two-resistor network in series and shunt to the connection.

5. [simpleusb.conf](#)

```
[general]           ; [stanza name]
[usb_123456]        ; usb stanza, 123456 is your node number

gpio8 =out0         ; MOD added for COS LED
eeprom =0           ; no EPROM present in URI (Usb radio interface)

rxboost=1           ; no pad, 0 =20 dB pad in audio stream of receiver
carrierfrom =usbinvert ; use COS active low (=usb, active hi or =no)
ctcssfrom =no       ; use radio CTCSS decode(else =usb or =usbinvert)
;deemphasis =no     ; yes =enable de-emphasis, Rx quality
plfilter =yes       ; removes PL tones in audio stream
rxondelay =0        ; after transmit, ignore COS for #x(20 mS) = 100 mS
rxaudiodelay = 3    ; typical 3-6 to cut tail on mic release, too hi and you hear yourself

txmixa =voice       ; URI 'a' output, left channel
txmixb =no          ; inactive
;txboost =0         ; 20 dB pad inserted in audio stream to transmitter (=1, no pad)
invertptt =0        ; PTT pull down to key (=1, pull-up to key)
preemphasis =1      ; Tx quality, eliminates distortion, standard 6db/octave

duplex =1           ; audio only, 0 turns off speaker, 1 leaves speaker on while talking.
                   ; this is different from rpt setting which controls the radio
```



6. rpt.conf handles the repeater functions such as ID, tails, and timing.
  - a. Telemetry is Tx tones/codes sent by the radio adapter board.
7. rpt.conf

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duplex = 1          ; half-duplex with telemetry tones & hangtime. Does not repeat audio.
                   ; =0 simple, no tones, no hangtime.
                   ; =2, full duplex repeater, telemetry tones, hangtime.

hangtime = 0       ; was 1000: squelch tail hang time (in ms) (optional, default 5000 ms)
althangtime = 0    ; was 3000: longer squelch tail
totime = 180000    ; transmit time-out time (in ms) (optional, default 3 minutes)

idrecording = |i NMØD-L ; Main ID message
;idtalkover = |i NMØD-L ; Talkover ID message
                   ; See Telemetry section Example: idrecording = rpt/nodenames/58220
idtime = 0         ; was 540000: id interval time (in ms) (optional) Default 300000 ms)
politeid =0        ; was 30000: ms before IDtimer tries to ID in the tail. (optional)

unlinkedct = ct2   ; Courtesy tone when unkey if the node not connected(optional)
remotect = ct3     ; remote linked courtesy tone (indicates a remote is in list of links)
linkunkeyct = ct8 ; sent when a transmission received over the link unkeys
;nolocallinkct = 0 ; Send unlinkedct instead if another local node is connected.

holdofftelem = 1   ; was 0, Hold off all telemetry when signal is present
telemdefault = 2   ; was 1, 2 = timed telemetry output on command execution

[wait-times]
telemwait = 150    ; 150 was 2000, wait before sending most telemetry. Adjust to suit
idwait = 10        ; 10 was 500, wait before starting ID
unkeywait = 500    ; 500 was 2000, wait after unkey before sending CT's and link telemetry
calltermwait = 150 ; 150 was 2000, wait before announcing 'call terminated'

```
8. Other \*.conf files have unique purposes.
  - a. iax.conf (Inter-Asterisk eXchange) sets port 4569 and additional ports to support multiple nodes on same IP.
  - b. modules.conf loads the connected channels, including dahdi, simpleusb, and all apps.
9. Life is good. Enjoy!

