

Beginners Guide

wiki.allstarlink.org

March 14, 2026

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1 Beginners Guide

Legacy Version - This page is about a legacy version of AllStarLink. See ¹

1.1 What is a node?

A node, in simplest terms, is a computer that connects to the AllStarLink network. Nodes typically have an RF radio interface as well as an internet connection. Radios can range in size from a repeater radio to a low power radio integrated into a node. A node allows you to connect to other nodes in the AllStarLink network.

Nodes take the form of an inexpensive Raspberry Pi computer or a PC running the Linux operating system.

1.2 How do I use AllStarLink?

If you have a local FM repeater that is AllStarLink enabled, you may already be using it! However, before attempting to control a local FM repeater, check with the owner(s) first before doing so -- ham radio etiquette applies.

AllStarLink is typically used in these ways:

- Via a FM repeater that is AllStarLink enabled. Controlled through DTMF commands², via the internet, or an autopatch.
- Via a local micro-node that is purchased by a HAM operator to join the AllStarLink network
- Via PC/Mac software that allows you to connect directly to a node. The microphone / speaker are used for audio.
- Via a mobile app such as DVSwitch Mobile³ to connect directly to a node.
- Via an autopatch

1 <https://allstarlink.github.io/>

2 https://wiki.allstarlink.org/wiki/AllStar_Link_Standard_Commands

3 https://play.google.com/store/apps/details?id=org.dvswitch&hl=en_US&gl=US

1.3 Getting on AllStarLink

- If you wish to create your own node, follow the directions below to create an account. After your account is active, you will need a suitable PC or Raspberry Pi computer to install AllStar onto.
- If you wish to use a local FM repeater that is AllStar enabled, you do not need an AllStar account. Check out our Active Nodes List⁴ to find a repeater near you. If you type your city name in the search box, you will be given a list of active nodes. However, before controlling any node via RF & DTMF, be sure to talk to the operator(s) of that node and receive permission first.
 - For a list of possible commands, visit the AllStarLink Standard Commands⁵ page.
 - Some nodes may be local/non public nodes, so look for information that the node is in fact public.
- If you wish to purchase a pre-made or complete node, check out our Radio Connections⁶ page for a list of vendors.

1.4 Creating an account

Go to <https://allstarlink.org/>⁷ and click the <Sign Up> link. **It may take up to 24 hours for your account to be verified.**

<figure class="mw-halign-none" typeof="mw:File/Thumb">⁸<figcaption></figcaption></figure>

1.5 Download an ASL image

While you are awaiting the verification of your account (usually within 24 hours) you may download one of the image files for you computer system you will use to run your AllStarLink node.

4 <http://stats.allstarlink.org/>
5 https://wiki.allstarlink.org/wiki/AllStar_Link_Standard_Commands
6 https://wiki.allstarlink.org/wiki/Radio_Connections
7 <https://web-tpa.allstarlink.org/>
8 https://wiki.allstarlink.org/wiki/File:Asl_sign_up_click_here_.png

2 ASL Version 3 Download

New download instructions and user guide are at **AllStarLink Manual**¹. ASL3 has been in production for a while now. It's stable and well supported. It runs on the latest operating systems, software and hardware. Please install or update to ASL3.

2.0.1 Bug Reports

Have a problem with the new ASL? Submit a bug/issue report here:

2

Write the image file to media. Either a USB memory stick, CD or DVD, or a microSD card (Raspberry Pi).

2.1 Flashing the ASL image

Legacy Version - This page is about a legacy version of AllStarLink. See ³

For all operating systems, we recommend downloading and installing balenaEtcher. It's available for macOS, Windows, and Linux. If you're flashing for RaspberryPi, an SD card reader is required.

Download balenaEtcher⁴

2.1.1 USB Thumbdrive (PC/Pi4)

1. Follow the directions below, but use a USB thumbdrive instead.

2.1.2 SD Card (Pi2-Pi4)

1. Open balenaEtcher
2. Insert your SD card into your SD card reader

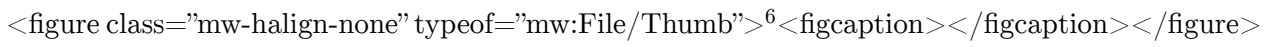
1 <https://allstarlink.github.io/>
2 <https://github.com/AllStarLink/ASL3>
3 <https://allstarlink.github.io/user-guide/pi-detailed/>
4 <https://www.balena.io/etcher>

3. Press "Select Image" and locate the downloaded image (e.g. ASL_1.01-20180228-armhf-raspbian-stretch-image)
4. If your SD card is ready to flash, you can simply press the "Flash!" button:
5. Insert your SD card into your Raspberry Pi and boot it up!

2.2 Login & Create a Server

Once your account is verified, login to your account at <https://www.allstarlink.org/>

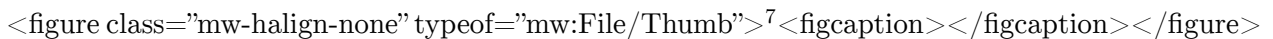
⁵ You will need to create a "server": Click on **<Portal>** then **<Server Settings>**.

⁶ Click on **<Add a new server>**.

Please take the time to read the instructions on each page.

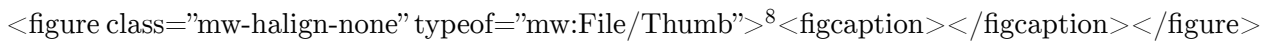
Then click **<Proceed with Server Setup>** if needed.


Fill in all of the information and click **<Submit>** at the bottom of the page.

⁷

2.3 Request a Node number

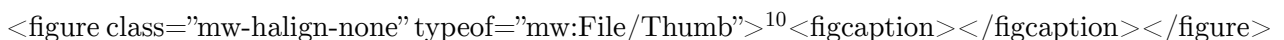
At the top of the page, click **<Portal>** and then on **<Node Settings>**.

⁸ Then click **<Request a new node number>**.

⁹ Select which server you would wish to have a node number assigned to

if you need more than one node number for the same server, repeat this process

A comment of 'additional node on same server' would be appropriate

¹⁰

Your first node will be automatically approved. Subsequent nodes are subject to approval. Once your node number request(s) are processed you will receive an email.

5 https://wiki.allstarlink.org/wiki/File:Asl_login.png

6 https://wiki.allstarlink.org/wiki/File:Asl_server1_.png

7 https://wiki.allstarlink.org/wiki/File:Asl_server_settings_.png

8 https://wiki.allstarlink.org/wiki/File:Asl_node_.png

9 https://wiki.allstarlink.org/wiki/File:Asl_request_node_.png

10 https://wiki.allstarlink.org/wiki/File:Asl_request_node2_.png

2.4 Edit Node settings

Log into your account on <https://allstarlink.org/>¹¹

Click <**Portal**> then <**Node settings**>.

The AllStarLink node numbers that have been assigned to you are displayed here.

Select which node you wish to view/edit.

Fill in the information for you node and click <**Submit**>.

<figure class="mw-halign-none" typeof="mw:File/Thumb">¹²<figcaption></figcaption></figure>

Write down your node number, password and the call sign you assigned for the node as you will use them to configure your AllStarLink system.

2.5 Install and configure ASL to your computer

Consult your owners manual or your favorite internet search engine for how to install an image for your computer system.

Install the AllStarLink disk image to your computer. Insert the appropriate media for your system and boot the computer.

When the login prompt appears enter the user ID of

`repeater`

and press <**Enter**>.

Enter the default password of

`allstarlink`

Follow the on screen instructions for the initial password change.

For users familiar with the linux operation system you may proceed to edit the system manually.

For users not familiar with linux and ASL, at the Linux CLI (command line interface)

Type **sudo asl-menu** as the example below shows.

```
repeater@repeater:~$ sudo asl-menu
```

This will load the AllStarLink configuration menu.

<figure class="mw-halign-none" typeof="mw:File/Thumb">¹³<figcaption></figcaption></figure>

¹¹ <https://web-tpa.allstarlink.org/>

¹² https://wiki.allstarlink.org/wiki/File:Asl_node_settings_.png

¹³ https://wiki.allstarlink.org/wiki/File:Asl_menu_main_screen.png

2.6 AllStarLink software setup

Choose option <1>.

<figure class="mw-halign-none" typeof="mw:File/Thumb">¹⁴<figcaption></figcaption></figure>
Since it is your first time setup, answer <Yes> so you can setup a "root" password. Don't forget to write down your user an password.

<figure class="mw-halign-none" typeof="mw:File/Thumb">¹⁵<figcaption></figcaption></figure>
Setup now will ask if you want to change "repeater" account password with you should already changed at first time login so answer <No>, unless you want to change it again. Do not forget to write it down.

<figure class="mw-halign-none" typeof="mw:File/Thumb">¹⁶<figcaption></figcaption></figure>
Now lets set time zone <Ok>.

<figure class="mw-halign-none" typeof="mw:File/Thumb">¹⁷<figcaption></figcaption></figure>
Choose the node's continent.

<figure class="mw-halign-none" typeof="mw:File/Thumb">¹⁸<figcaption></figcaption></figure>
Choose the node's city.

<figure class="mw-halign-none" typeof="mw:File/Thumb">¹⁹<figcaption></figcaption></figure>
Next you can change the name of you host name, the default is **repeater**.

<figure class="mw-halign-none" typeof="mw:File/Thumb">²⁰<figcaption></figcaption></figure>
Answer <Yes> to be able to make changes.

<figure class="mw-halign-none" typeof="mw:File/Thumb">²¹<figcaption></figcaption></figure>
Type the new host name and hit <Enter>.

<figure class="mw-halign-none" typeof="mw:File/Thumb">²²<figcaption></figcaption></figure>
If you want to set up a domain, type it and hit <Enter>.

<figure class="mw-halign-none" typeof="mw:File/Thumb">²³<figcaption></figcaption></figure>
Say <Ok> to this message.

<figure class="mw-halign-none" typeof="mw:File/Thumb">²⁴<figcaption></figcaption></figure>
Now you can make your network settings <Ok>.

14 https://wiki.allstarlink.org/wiki/File:002_first_time.png
15 https://wiki.allstarlink.org/wiki/File:003_password.png
16 https://wiki.allstarlink.org/wiki/File:004_repeater_password.png
17 https://wiki.allstarlink.org/wiki/File:005_timezone.png
18 https://wiki.allstarlink.org/wiki/File:006_continent.png
19 https://wiki.allstarlink.org/wiki/File:007_city.png
20 https://wiki.allstarlink.org/wiki/File:008_message.png
21 https://wiki.allstarlink.org/wiki/File:009_edit_hostname.png
22 https://wiki.allstarlink.org/wiki/File:010_hostname.png
23 https://wiki.allstarlink.org/wiki/File:011_domain_name.png
24 https://wiki.allstarlink.org/wiki/File:012_message.png

<figure class="mw-halign-none" typeof="mw:File/Thumb">²⁵<figcaption></figcaption></figure>
Just say <Ok> to this message.

<figure class="mw-halign-none" typeof="mw:File/Thumb">²⁶<figcaption></figcaption></figure>
To choose between DHCP or Static IP say <Yes>.

<figure class="mw-halign-none" typeof="mw:File/Thumb">²⁷<figcaption></figcaption></figure>
Use <D> for DHCP or <S>. for Static, if you choose Static, you will be asked to enter it next, for this example DHCP is in use.

<figure class="mw-halign-none" typeof="mw:File/Thumb">²⁸<figcaption></figcaption></figure>
Just say <Ok> to this message.

<figure class="mw-halign-none" typeof="mw:File/Thumb">²⁹<figcaption></figcaption></figure>
Just say <Ok> to this message.

<figure class="mw-halign-none" typeof="mw:File/Thumb">³⁰<figcaption></figcaption></figure>
Just say <Ok> to this message.

<figure class="mw-halign-none" typeof="mw:File/Thumb">³¹<figcaption></figcaption></figure>
Choose option <A1>.

<figure class="mw-halign-none" typeof="mw:File/Thumb">³²<figcaption></figcaption></figure>
Choose option <N1>.

<figure class="mw-halign-none" typeof="mw:File/Thumb">³³<figcaption></figcaption></figure>
Type the node number for your node. Yes the one you previously wrote down from AllStarLink site.

<figure class="mw-halign-none" typeof="mw:File/Thumb">³⁴<figcaption></figcaption></figure>
Choose option <N2>.

<figure class="mw-halign-none" typeof="mw:File/Thumb">³⁵<figcaption></figcaption></figure>
Type the node password for your node. Yes the one you previously wrote down from AllStarLink site.

<figure class="mw-halign-none" typeof="mw:File/Thumb">³⁶<figcaption></figcaption></figure>
Choose option <N3>.

-
- 25 https://wiki.allstarlink.org/wiki/File:013_dhcp.png
 - 26 https://wiki.allstarlink.org/wiki/File:014_network.png
 - 27 https://wiki.allstarlink.org/wiki/File:015_dhcp_static.png
 - 28 https://wiki.allstarlink.org/wiki/File:016_dhcp_static.png
 - 29 https://wiki.allstarlink.org/wiki/File:017_message.png
 - 30 https://wiki.allstarlink.org/wiki/File:018_message.png
 - 31 https://wiki.allstarlink.org/wiki/File:019_message.png
 - 32 https://wiki.allstarlink.org/wiki/File:020_a_menu_a1.png
 - 33 https://wiki.allstarlink.org/wiki/File:021_n_menu_n1.png
 - 34 https://wiki.allstarlink.org/wiki/File:022_node_number.png
 - 35 https://wiki.allstarlink.org/wiki/File:023_n_menu_n2.png
 - 36 https://wiki.allstarlink.org/wiki/File:024_node_password.png

<figure class="mw-halign-none" typeof="mw:File/Thumb">³⁷<figcaption></figcaption></figure>
Type the call sign for your node. Yes the one you previously wrote down from AllStarLink site.

<figure class="mw-halign-none" typeof="mw:File/Thumb">³⁸<figcaption></figcaption></figure>
Choose option <N4>.

<figure class="mw-halign-none" typeof="mw:File/Thumb">³⁹<figcaption></figcaption></figure>
Choose option <I1>.

<figure class="mw-halign-none" typeof="mw:File/Thumb">⁴⁰<figcaption></figcaption></figure>
Just say <Ok> to this message.

<figure class="mw-halign-none" typeof="mw:File/Thumb">⁴¹<figcaption></figcaption></figure>
Choose option <N5>.

<figure class="mw-halign-none" typeof="mw:File/Thumb">⁴²<figcaption></figcaption></figure>
If your node will be a simplex node type <1>. If your node is a repeater controller type <2>.

<figure class="mw-halign-none" typeof="mw:File/Thumb">⁴³<figcaption></figcaption></figure>
Choose option <N6>.

<figure class="mw-halign-none" typeof="mw:File/Thumb">⁴⁴<figcaption></figcaption></figure>
Type a new password, this will be used to have access from the nodes web site Allmon2, the default password is 'llcgi'.

<figure class="mw-halign-none" typeof="mw:File/Thumb">⁴⁵<figcaption></figcaption></figure>
Just say <Ok> to this message.

<figure class="mw-halign-none" typeof="mw:File/Thumb">⁴⁶<figcaption></figcaption></figure>
Just say <Ok> to this message.

<figure class="mw-halign-none" typeof="mw:File/Thumb">⁴⁷<figcaption></figcaption></figure>
Choose option <N9>.

<figure class="mw-halign-none" typeof="mw:File/Thumb">⁴⁸<figcaption></figcaption></figure>
Just say <Ok> to this message.

37 https://wiki.allstarlink.org/wiki/File:025_n_menu_n3.png
38 https://wiki.allstarlink.org/wiki/File:026_callsign.png
39 https://wiki.allstarlink.org/wiki/File:027_n_menu_n4.png
40 https://wiki.allstarlink.org/wiki/File:028_i_menu_i1.png
41 https://wiki.allstarlink.org/wiki/File:029_message.png
42 https://wiki.allstarlink.org/wiki/File:030_n_menu_n5.png
43 https://wiki.allstarlink.org/wiki/File:031_rptr_mode.png
44 https://wiki.allstarlink.org/wiki/File:032_n_menu_n6.png
45 https://wiki.allstarlink.org/wiki/File:033_password.png
46 https://wiki.allstarlink.org/wiki/File:034_message.png
47 https://wiki.allstarlink.org/wiki/File:036_message.png
48 https://wiki.allstarlink.org/wiki/File:037_n_menu_n9.png

<figure class="mw-halign-none" typeof="mw:File/Thumb">⁴⁹<figcaption></figcaption></figure>
Just say <Ok> to this message.

<figure class="mw-halign-none" typeof="mw:File/Thumb">⁵⁰<figcaption></figcaption></figure>
Just say <Ok> to this message.

<figure class="mw-halign-none" typeof="mw:File/Thumb">⁵¹<figcaption></figcaption></figure>
Just say <Ok> to this message.

<figure class="mw-halign-none" typeof="mw:File/Thumb">⁵²<figcaption></figcaption></figure>
Just say <Ok> to this message.

<figure class="mw-halign-none" typeof="mw:File/Thumb">⁵³<figcaption></figcaption></figure>
Just say <Ok> to this message.

<figure class="mw-halign-none" typeof="mw:File/Thumb">⁵⁴<figcaption></figcaption></figure>
Just say <Ok> to this message.

<figure class="mw-halign-none" typeof="mw:File/Thumb">⁵⁵<figcaption></figcaption></figure>
Choose option <Back>.

<figure class="mw-halign-none" typeof="mw:File/Thumb">⁵⁶<figcaption></figcaption></figure>
Choose option <AZ>.

<figure class="mw-halign-none" typeof="mw:File/Thumb">⁵⁷<figcaption></figcaption></figure>
Review what you wrote down with what you have configured on your system and press <
Enter>.

<figure class="mw-halign-none" typeof="mw:File/Thumb">⁵⁸<figcaption></figcaption></figure>
Choose <Yes> to backup your configuration.

<figure class="mw-halign-none" typeof="mw:File/Thumb">⁵⁹<figcaption></figcaption></figure>
Just say <Ok> to this message.

<figure class="mw-halign-none" typeof="mw:File/Thumb">⁶⁰<figcaption></figcaption></figure>
Just say <Ok> to this message.

<figure class="mw-halign-none" typeof="mw:File/Thumb">⁶¹<figcaption></figcaption></figure>
Just say <Ok> to this message.

49 https://wiki.allstarlink.org/wiki/File:038_message.png

50 https://wiki.allstarlink.org/wiki/File:039_message.png

51 https://wiki.allstarlink.org/wiki/File:040_message.png

52 https://wiki.allstarlink.org/wiki/File:041_message.png

53 https://wiki.allstarlink.org/wiki/File:042_message.png

54 https://wiki.allstarlink.org/wiki/File:043_message.png

55 https://wiki.allstarlink.org/wiki/File:044_message.png

56 https://wiki.allstarlink.org/wiki/File:045_n_menu_back.png

57 https://wiki.allstarlink.org/wiki/File:046_a_menu_az.png

58 https://wiki.allstarlink.org/wiki/File:047_review.png

59 https://wiki.allstarlink.org/wiki/File:048_backup.png

60 https://wiki.allstarlink.org/wiki/File:049_message.png

61 https://wiki.allstarlink.org/wiki/File:050_message.png

<figure class="mw-halign-none" typeof="mw:File/Thumb">⁶²<figcaption></figcaption></figure>
Choose option <Exit>.

<figure class="mw-halign-none" typeof="mw:File/Thumb">⁶³<figcaption></figcaption></figure>
Answer <Yes>, because we already saved our configuration.

<figure class="mw-halign-none" typeof="mw:File/Thumb">⁶⁴<figcaption></figcaption></figure>
If you want to automatically start your system with this menu answer <Yes>, if not then <No>.

<figure class="mw-halign-none" typeof="mw:File/Thumb">⁶⁵<figcaption></figcaption></figure>
If you answer was <No>, remember you can come back to this menu typing **sudo asl-menu** as the following example:

```
repeater@repeater:~$ sudo asl-menu
```

<figure class="mw-halign-none" typeof="mw:File/Thumb">⁶⁶<figcaption></figcaption></figure>
Now your node will reboot to apply all the changes we have done, so say <Ok>.

<figure class="mw-halign-none" typeof="mw:File/Thumb">⁶⁷<figcaption></figcaption></figure>

2.7 Determine Radio Interface

If you're planning on using this as a radioless node, skip this step. **You'll need to hook your node to a radio of your choice.**

Radio Connections⁶⁸ - Determine type of radio connection

2.8 AllStarLink Audio settings with SimpleUSB

Once you've hooked up a radio with your desired interface, it's time to test and tune the audio from the radio.

type **sudo asl-menu** like the example below:

```
repeater@repeater:~$ sudo asl-menu
```

Choose option <4>.

<figure class="mw-halign-none" typeof="mw:File/Thumb">⁶⁹<figcaption></figcaption></figure>
With option <F>, will trigger PTT few times on your radio for testing, you should also listen a test tone.

62 https://wiki.allstarlink.org/wiki/File:051_message.png

63 https://wiki.allstarlink.org/wiki/File:052_a-menu_exit.png

64 https://wiki.allstarlink.org/wiki/File:053_exit.png

65 https://wiki.allstarlink.org/wiki/File:054_select_menu_sartup.png

66 https://wiki.allstarlink.org/wiki/File:055_message.png

67 https://wiki.allstarlink.org/wiki/File:056_reboot.png

68 https://wiki.allstarlink.org/wiki/Radio_Connections

69 https://wiki.allstarlink.org/wiki/File:101_asl_menu_4.png

Next, with option **<2>**, you can adjust the audio levels from your radio to your node node with the aim of an on-screen level meter.

With another radio transmit a test tone or voice and type values between 0 and 999 followed by **<Enter>** to apply them, if you do not set any value and hit **<Enter>**, you will exit this function keeping the last typed value on RAM.

Next, type option **<T>**, you can toggle a tone generator to adjust your node to radio audio levels, so type it once to turn it on.

Now typing option **<3>**, will allow you to adjust the audio from your node to your Tx radio.

To achieve that, you can type values between 0 and 999 and press **<Enter>** to apply the new value. The system will Tx a test tone for 5 seconds. If you do not set any value and hit **<Enter>**, you will exit this function keeping the last typed value on RAM.

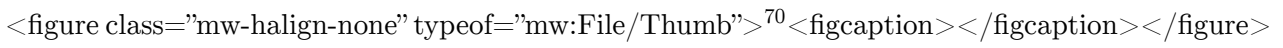

Do not forget to turn of the tone generator by pressing once again **<T>**.



Once you are happy with your settings, type **<W>** and **<Enter>**.

To exit from this menu type **<0>** (zero) and hit **<Enter>**.

2.9 PTT and COS polarity settings

Your radio may require PTT and/or COS/CTCSS polarity to be inverted to work properly. To do this, go to the main ASL menu and choose option **<6>**.

 ⁷⁰  Choose option **<I>**.

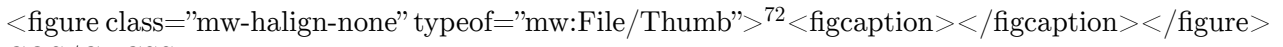

 ⁷¹  You will be taken to a text file where you will need to find and edit some values:

PTT invert:

Search for the line beginning with **invertptt** = and change its value as follows:

0 = Ground to Transmit (most common).

1 = Open to Transmit.

 ⁷²  COS/CTCSS invert:

Search for the line beginning with **carrierfrom** = and change its value as follows.

Search for the line beginning with **ctcssfrom** = and change its value as follows.

no = No carrier detection at all.

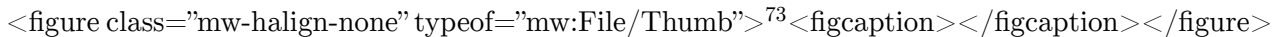
⁷⁰ https://wiki.allstarlink.org/wiki/File:103_asl_menu_6.png

⁷¹ https://wiki.allstarlink.org/wiki/File:104_config_menu_i.png

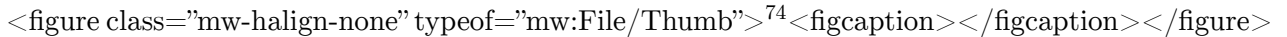
⁷² https://wiki.allstarlink.org/wiki/File:105_invertptt.png

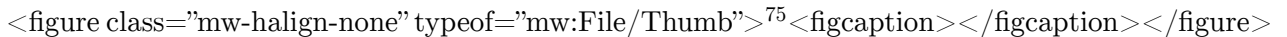
usb = COR (COS) line active Hi.

usbinvert = COR (COS) line active Low.

⁷³ After making your changes type **<CTRL> + <X>** and then type **<Y>** followed by **<Enter>**. You will be back to the previous menu and choose **<Back>**.

Choose Option **<9>**.

⁷⁴ Choose option **<G>** to restart AllStarLink software and apply changes. Choose **<Back>**, repeat your audio test if needed.

⁷⁵

At this point your node should be up and running.

2.10 Allmon2 Setup

AllMon2 is a web based portal for controlling and monitoring your node and who's connected to it.

- Allmon2 Install and Setup⁷⁶ - Allmon2 Setup

2.11 Contributors

- KK9ROB⁷⁷
- N8EI⁷⁸
- W3KKC⁷⁹
- This page was last edited on 18 October 2024, at 16:36.

⁷³ https://wiki.allstarlink.org/wiki/File:106_invertcos.png

⁷⁴ https://wiki.allstarlink.org/wiki/File:107_asl_menu_9.png

⁷⁵ https://wiki.allstarlink.org/wiki/File:108_diag_menu_g.png

⁷⁶ https://wiki.allstarlink.org/wiki/Allmon2_Install_and_Setup

⁷⁷ <https://wiki.allstarlink.org/index.php?title=User:KK9ROB&action=edit&redlink=1>

⁷⁸ <https://wiki.allstarlink.org/index.php?title=User:N8EI&action=edit&redlink=1>

⁷⁹ <https://wiki.allstarlink.org/wiki/User:W3KKC>

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¹ Chapter 4 on page 21

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