AllStar Node Setup and Configuration Guide

I.   Hardware

   A. Computer – Raspberry Pi 2 or Raspberry Pi 3 (any version).

   B. Case for the Raspberry Pi. A metal case is preferred but if you want to use a WiFi connection instead of a wired network connection then a plastic case may be required to obtain adequate range.

   C. Micro SD card – 8GB or 16GB, get 2.

   D. Power supply for Pi – This should be a power supply intended for a Raspberry PI or a high quality phone charger with mini-USB connector. Numerous problems have been reported with bad supplies.

   E. A computer to radio interface – suggest the DINAH kit by N8AR.

   F. A proper interface cable from DINAH to the radio. DINAH has a 6 pin mini-DIN female connector as do many radios, and the DINAH kit comes with a 6-pin to 6-pin male mini-DIN cable. Some radios have 10 pin mini-DIN female connectors. Review your configuration and acquire the proper cable.

II.   Credentials

   A. Sign up for Login at https://web-tpa.allstarlink.org/

     1. Go to https://web-tpa.allstarlink.org/ and click on "Logon/Sign up"

     2. A small Logon screen will appear. Click on the "Sign Up" link at the bottom of this smaller screen.

     3. Read the information on the screen that appears and click on "Begin Registration."

     4. Fill in the form with your information and click "Submit."

     5. It will take 1 to 24 hours to receive confirmation email, after which you can proceed to step II-B. While waiting you may proceed with step III. – Software.

   B. Request a Node number.

     1. In a separate browser window, load the Beginners Guide from https://wiki.allstarlink.org/wiki/Beginners_Guide

2. **DISREGARD** the information about downloads in the Beginner's Guide. Downloads are covered later in this procedure.

3. Go to https://web-tpa.allstarlink.org/ and logon.

4. Follow the steps in the Beginner's Guide to request a node number. In addition, use this procedure for reference.

    a. Create a server
       i. Server name - The server name is arbitrary and will be adjusted later. Suggest [*your call-1*] (eg: "W8XYZ-1") for now.
       ii. Server location – City, State is customary.
       iii. Site – Suggest "Home," "Shack," Doghouse," etc.
       iv. Affiliation – optional.
       v. IAX Port – leave this unchanged.
       vi. Latitude and Longitude – Use the map to locate your server site. This will enter the Lat./Long. data automatically.

    b. Request a node number.
       i. Following the Beginner's Guide under the heading "Request a Node number," click on "Portal" on the top line of the page.
       ii. Select "Node Settings" from the drop-down menu.
       iii. Click on the "Request a new node number" link highlighted in green.
       iv. The next screen that appears will prompt you to select the server to which the node is assigned. If you have only one server, the server you just created, it will appear in the selection box. If you have more than one server, the selection box is a drop-down selector. Select the appropriate server and click on the "Submit" button. A message is optional.
       v. You can Logout of AllstarLink.org.
       vi. It will take 1 to 24 hours to receive confirmation email. While waiting you may continue with step III. – Software.

III. Software

A. Obtain software and prepare Raspberry Pi to be the Node Host Server.

1. Select a Windows computer to be used as the setup and control computer for the Raspberry Pi node and do the following steps. The computer you choose needs to be capable of reading and writing SD memory cards.

2. Go to web page https://hamvoip.org/ Click on the item "Download"

3. Scroll down to the text in bold with message "**The latest images are available here –**"

4. Click on the first downloadable item: RP2-3 from **https://hamvoip.org/ RPi2/RPi2-3_V1.5rc50_Allstar.exe** This will start a download process. "Save As" in a well know directory – suggest - \My Documents\Allstar.

5. Open the directory where the downloaded file was saved. The file is a self-extracting executable that will yield the following files:
   PuTTY.exe - SSH terminal software.
   RPi2-3_V1.5rc50_Allstar.img - Rasp Pi image for micro SD card
   Win32diskimager-1.0.0-install.exe - Software to write the SD card
   WinSCP-5.13.7-Setup.exe - Installs a useful Windows to Linux
   utility. More info on this later.

6. Run (double-click) the win32diskimager installer. Place an icon on the desktop for convenience.

7. Place PuTTY.exe on the desktop.

8. Insert a micro SD card in the computer card slot. If you have any security software running that prevents "MBR" (master boot record" access, **TURN IT OFF** before you begin the transfer process. (Turn it back on afterward.)

9. Start win32diskimager (double-click on the desktop icon). It should point to the SD card as the destination. Browse to the directory containing the Allstar.img file and select it as the source to be transferred. Click "Write." The process should take 5 to 20 minutes depending on your computer.

10. Once the transfer is completed, insert the microSD card into the microSD card slot in the Raspberry Pi.

11. Plug the computer to radio interface (or DINAH) into a USB slot on the Raspberry Pi. Plug the cable from the interface to the radio.

12. Select a simplex frequency, but NOT 146.52 MHz or 446.000 MHz which are national calling frequencies, which you will use for operation. Check the rules for your area for band plan and spacing of simplex frequencies.

> **CAUTION:** Never tune the node connected radio to a repeater frequency to which you have linked your node. Doing so will set up an echoing feedback loop causing interference on the repeater.

13. Set your radio to the frequency selected. Apply Rx/Tx CTCSS (PL) tones if desired (recommended). Set the radio to low power.

14. Tune your HT to the same simplex frequency and CTCSS tones for Rx/ Tx.

15. Connect an active Ethernet cable to the Ethernet connector on the Pi.

B. Starting up the Raspberry Pi for the first time.

You have a choice as to how to communicate with your node on the Raspberry Pi. You can open a terminal emulation session using the SSH protocol by running the PuTTY program included with the download, or you can connect a keyboard to a USB port on the Pi and a monitor to the HDMI port. (If you are using DINAH, you will need to connect DINAH to your PI with a USB extension cable so you can plug in your keyboard)

1. Power up the Raspberry Pi by attaching the power cable to the mini-USB connector on the Pi. The red light on the Pi may flash or be steady and the green light should be flashing.

2. When the Pi finishes booting, it will announce its IP address, which you will hear on your HT – be ready to write it down.

3. Start the PuTTY terminal software by double-clicking on the desktop icon. Type in the IP address of the Pi and change the Port to 222. Save this session with a name like "Allstar" or "Fred" or whatever, because you will be loading this many times. Press the "Open" button to start the session.

    Note: You can improve the formatting of the PuTTY displayed screen by navigating to Window>Translation. In the Remote Character Set: pull down window, select CP437.

4. When the terminal screen opens, you should see a prompt requesting a login. Type: **root**. You will then be prompted for a password. Type: **root**.

5. At this point, if all has gone well, the "firsttime.sh" configuration script will start running which will take you through the process of entering all of the pertinent information to setup the host node.

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6. If, for any reason, you exit the "firsttime.sh" script before reaching its end, you will need to rerun the "firsttime.sh" script again in order to complete the node configuration. You will know that the script did not reach its end because not all of the steps in section "IV. Configuration," were not completed before the "Admin" screen is displayed. If this happens, follow these steps to rerun the "firsttime.sh" script.

    a. From the "Admin" screen, select item 9 "Start Bash shell interface" by typing 9 (**top row numeric keys ONLY!**) or scrolling to item 9. Click on the <Run Selected Item> or press Enter.

    b. Change to the /usr/local/sbin directory. Type the following and press Enter.
        cd /usr/local/sbin

    c. Start the firsttime.sh script. Type the following and press Enter.
        firsttime.sh

    d. When the "firsttime.sh" script starts, proceed to IV. Configuration. Steps that have previously been completed in the script may be skipped with appropriate responses such as **<Cancel>** or **<No>**.

IV.   Configuration

A. When entering numbers in the "firsttime.sh" setup script, **DO NOT USE THE NUMERIC KEYPAD. ENTER NUMBERS ONLY BY USING THE NUMBERS ALONG THE TOP ROW OF KEYS ON THE KEYBOARD!!!!!** The numeric keypad may cause the script to terminate abruptly or to skip questions, resulting in an incomplete setup and a need to re-run the script.

B. Host configuration entry – phase 1, updating the host software; the first reboot.

1. The firsttime.sh script starts asking if you want to retrieve the latest updates – respond – **YES**.

2. When the update is finished you will be prompted to reboot; do so.

3. You will lose communication from the Windows computer to the Pi as the Pi reboots, so you will have to close PuTTY and restart it to regain access to the Pi. Log in again with username **root,** password **root**. Both the username and the password are case sensitive.

4. Next you will again be asked if you want to retrieve the latest updates – respond – **NO**.

C. Host configuration – phase 2, running the "firsttime.sh" script and the second reboot.

1. You will then be asked if you want to run the first time script – respond – **YES**.

2. You will now be prompted to change the password for the root login account. **Change the password** and **write down the new password.** It is the ONLY way you can log back into the Pi, unless you want to start over with a NEW image load to the SD card! Remember, the password is case sensitive. If you are re-running the firsttime.sh script you can skip this step by responding NO.

3. The script will next ask if you want to set up the node configuration for asterisk – respond – **YES.** You will be notified that some configurations will continue after reboot, but the system will not reboot at this time. Confirm the notification.

4. Next the script asks if you wish to change the time zone. The default time zone is "America/New York" or Eastern USA.
   a. Respond – **NO**, proceed to step 5.
   b. Respond – **YES**, continue to step IV-C-4c.
   c. The script will built a list of available world-wide time zones. Using the up-down arrow keys, scroll through the list to find your selection and press **ENTER**
   d. The script will display the old and new time zones and ask if the choice is correct. Respond – **YES**, proceed to step IV-C-5. Respond – **NO**, repeat steps IV-C-4c and IV-C-4d.

5. The script will display the "hostname" of the Pi computer and ask if you wish to change to a new name. While any name is OK, it is suggested that you change the name to [*your call*]-[*node number*] (eg: W8XYZ-12345) If this is the first time through the script, respond – **YES**, otherwise respond – **NO** and proceed to step IV-C-7.

6. The script will display a screen asking you to enter the new hostname. Enter the new name and respond – **OK**.

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7. The next screen displays the Pi's IP address and whether it is dynamic or static, asking if you wish to change these parameter.

   For most applications, it is recommended that you use a dynamic IP address. Consult the documentation for your router to set up address reservation to maintain the same IP address so that port forwarding to your node does not have to change. You will be instructed to set up port forwarding later in this procedure.

   a. Respond – **NO**, proceed to step IV-C-8.
   b. Respond – **YES**, continue to step IV-C-7c.
   c. The script asks it you want static or DHCP network interface control. For DHCP respond with **D** and proceed to step IV-C-7e.
   d. For static respond with **S**. A screen will be presented asking for the new IP address. Enter and respond **OK**. Proceed to step IV-C-7e
   e. A screen will be presented indicating that network setup is complete. Respond – **OK**.

8. The script then asks if you want to change the SSH port number. It is not suggested that you change the port number from 222
   a. Respond – **NO**, proceed to step IV-C-9.
   b. Respond – **YES**, proceed to step IV-C-8c.
   c. A screen will appear requesting you to enter the new port number. Enter the new number. Respond – **OK**.
   d. A screen will appear confirming that SSH port configuration is complete. Respond – **OK**.

9. The next screen will prompt you to reboot the Pi system, reminding you to use the new password that you entered in step IV-C-2. It also displays the IP address and SSH port numbers that must be used if these were changed. Respond – **REBOOT.**

D. .Phase 3 - Continuing configuration of the Host Node and the third reboot.

1. Again, as the system reboots, you will lose terminal communication with it through PuTTY. Close and restart PuTTY, reload the IP and SSH port parameters, and re-open the terminal window to the Pi.

2. Log into the Pi. Username – **root**, password – the **NEW** password that you established in step IV-C-2. A screen will be displayed that indicates that first time node configuration will now proceed. This is the continued configuration that was indicated after reboot notified in step IV-C-3. Respond – **OK**.

3. A screen prompts you to enter the node number. This is the number assigned to your node by AllstarLink.org. **DO NOT USE THE NUMERIC KEYPAD TO ENTER THIS NUMBER!**   After entering the number, respond – **OK**.

4. The next screen asks for entry of your station call. Enter your call and respond – **OK**. **DON'T USE THE NUMERIC KEYPAD!**

5. The next screen asks if you want to report the status of your node to AllstarLink.org. This is very useful for the organization and does not compromise you in any way. You are encouraged to respond – **YES**.

6. Next, you choose a voice ID or a CW ID that will be broadcast by your node. If you respond – **NO**, a CW ID will be used. If you respond – **YES**, a voice ID will be created and used.

7. The next screen asks if you need to change the default iax protocol port number. To leave the default port number unchanged respond – **OK**.

8. The next screen chooses the duplex mode for your node. The choices are presented and explained on the screen. Normal simplex nodes select the default choice of "1" and respond – **OK**.

9. Next, you must enter the password that was assigned to your node by AllstarLink.org. This was obtained by you from the Allstar Link website. Enter this password carefully and **DO NOT USE THE NUMERIC KEYPAD** for any numbers that appear in the string. Respond – **OK**.

10. On the next screen you are asked if you would like to set a password for iaxRpt. Explaining iaxRpt is beyond the scope of this document, but this password can be entered at another time if you chose to use this program. Respond – **YES** if you want to enter a password, and respond to the prompts that will be presented by the script in that case. Otherwise, respond – **NO**.

11. Next, you will be prompted to configure the "Simple USB" settings. These settings can be reviewed and adjusted once the Asterisk Admin menu is up and running. Respond – **NO**.

12. The next screen that should appear is the "Admin Menu List for: [*host-name*]" followed by a menu of choices for configuring and controlling the host node.

E. Phase 4 - Final configuration

1. From the "Admin Menu" select item 12 – Run SimpleUSB-tune-menu Application, by clicking on item 12 or scrolling to item 12 with the arrow keys, and then clicking on **<Run Selected Item>** or by pressing Enter.

2. The "SimpleUSB-tune-menu" will be displayed. While making these adjustments you may also wish to refer to the documentation at https://hamvoip.org/hamvoip_v1.5_Allstar_README.pdf   Scroll down to the section heading "SimpleUSB-tune-menu" and read through the documentation. Then use the following procedure. With a few exceptions, the default settings in this menu will work for most installations. Some parameters will need adjustment, and some settings will need to be checked, however.

3. Type – **v** and press Enter. This will display the real-time status of COS (carrier operated squelch), CTCSS (sometimes called PL) and PTT (push to talk) signals.

4. In most cases, the display should look like the first example (quiescent state) on page 6 of the Readme file referenced above.
    a. If the display is the same as the example, proceed to step IV-E-5.
    b. If any of the COS signals DO NOT indicate CLEAR, press Enter to redisplay the menu, then check item "J) COSFROM Mode" to see if it is "usbinvert." Whether it is or isn't, this may need to be adjusted.
    c. Type **J** and press Enter. The menu for USB setting will be displayed.
    d. If "usbinvert" is not currently selected, type **3** to select it and press Enter. Then return to step IV-E-3 to see is the COS entries indicate CLEAR. Otherwise proceed to step IV-E-4v.
    e. If "usbinvert" is currently selected, try each of the other selections in the same manner as indicated in step IV-E-4iii until the correct one is found that produces a result of COS signals CLEAR while the radio is quiescent.

5. Repeat the procedure of step IV-E-3 and examine the PTT signal.
    a. If it does not indicate CLEAR, then press Enter to return to the menu, and type **I** to toggle the PTT Mode.
    b. Repeat the procedure of step IV-E-5. The PTT signal should now indicate CLEAR. Press ENTER to return to the menu.

6. In the next section you will make several test transmissions to perform level adjustments. Be sure to identify the transmissions in accordance with FCC regulations.

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a. Type **2** and press Enter to turn on the real time Rx voice level display. Observe the scale shown on the display. Note the position of the "v -- 3KHz" and "v – 5KHz" indicators.
b. Perform a voice test transmission from your HT speaking into your microphone in a normal level and observe the level monitor on the screen.   It should reach around "v – 5KHz" on voice peaks, occasionally going above, but usually staying between the "v - 3KHz" and "v – 5KHz" levels.
c. Press Enter to enter a new setting value to adjust the level up or down as needed. Try moving in increments of 100 at first, and then increments of 50 to "fine tune."
d. Repeat steps IV-E-6i through -6iii until a suitable level is attained.
e. Return to the SimpleUSB-Tune-Menu by pressing ENTER

7. Type **3** and press Enter.
a. Verify or set the Tx level to 500.
b. Key your HT and dial *81 using the DTMF (Touch Tone) pad. You should hear the local time announced.
c. Adjust the level up or down as needed to attain a suitable audio level.

8. Make note of ALL of the parameter settings made in this procedure in case they must be reentered at a later time.

9. Type **W** and press Enter to write (save) any changes made using the SimpleUSB-tune-menu adjustment procedure.

10. Type **0** (zero) and press Enter to return to the "Admin" menu.

11. If you intend to use a wired network connection to the node, then you may proceed to step IV-E-12. If you wish to setup a WiFi network connection, then select item **7** from the "Admin" menu and enter the wireless configuration information in the menu that appears.

12. At this point it is advised that you check the documentation for your router for the method for establishing port forwarding. Set up forwarding of port 4569 for UDP packets for the IP address of the Raspberry Pi computer. This is required to be able to receive connection requests from other nodes.

13. Logon to AllstarLink.org at https://web-tpa.allstarlink.org/
a. Click on **Portal / Server Settings** at the top of the page.
b. The next screen will display your server(s). Click on your server that is highlighted under the heading "Name."
c. In the box under "Server Name" enter the actual name given to your node server. (eg.: W8XYZ-12345)

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      d. In the box under "Hostname" enter the actual name given to your node server computer. In some, but not all cases, this will be the same as your server name.

      e. Click on the "Submit" button to save your changes and exit this page.

      f. Click on **Portal/Node Settings** at the top of the page.

      g. The next screen will display your node number(s). Click on your node number that is highlighted under the heading "Node Number."

      h. Enter your callsign in the designated box.

      i. Entry of your node frequency and CTCSS tone are optional but recommended.

      j. Enter the functions that are shown on the right side of the page.

      k. Click on the "Submit" button to save your changes and exit this page.

14. This completes the entries at AllstarLink.org. You may wish to browse the other pages at this website. Do not logout at this time.

15. This completes the configuration of the Allstar node procedure.

V.   Operation

A. Test the node. From the "Admin" menu in the PuTTY terminal window, select item 11 "Run Asterisk CLI Client." Click on <Run Selected Item>. The "Admin" menu will be replaced by the Command Line Interpreter (CLI) prompt. This screen allows you to enter commands directly to the node.

    1. At the CLI prompt, type **rpt fun** [*node*] ***80** (replace [*node*] with your node number) and press Enter

    2. The radio attached to your node should transmit your call sign followed by /R in CW. You should hear this transmission on your HT.

    3. At the CLI prompt, type **rpt fun** [*node*] ***82** and press Enter.

    4. Your node radio should announce the time in 24 hour format, which you will hear on your HT.

    5. Type **rpt fun** [*node*] ***81** and press Enter. You should hear the node radio announce the time in 12 hour format on your HT.

    6. The DTMF commands should be verified as working using the DTMF keypad on your radio microphone. Especially, the proper decoding of all digits should be verified by observing the responses on the CLI.

B. Connecting to another node.

    1. Use the window where you are logged on to AllstarLink.org to find a node that you would like to connect to.

      a. Click on "Node" at the top of the AllStarLink page.

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b. The screen that appears displays a list, by node number, of all of the nodes in the AllStar system.
At the top, right side of the page is a box labeled "Filter." Type the call sign of a favorite repeater that you know to be AllStar enabled.

c. The node(s) that are attached to that call will be displayed on the page. Make note of the node number for the repeater.

d. In the PuTTY window, at the CLI prompt,
type **rpt fun** [*node1*] ***3**[*node2*] and press Enter.
Replace [*node1*] with the node number for your node.
Replace [*node2*] with the node number for the repeater. Be sure to type the line EXACTLY as shown, including spacing.

2. Your node radio should report that your node number is attached to the repeater's node number. You should hear this on your HT.

3. When you transmit with your HT, you should hear a new (different) courtesy tone at the end of your transmission. This indicates that you are transmitting on the remotely connected repeater via its node.

4. When making transmissions, allow about 2 seconds after you key up for the nodes to synchronize before you begin to speak. Otherwise, the beginning of your transmission may not be heard on the other node connected systems.

C. Disconnecting from another node.

1. You may wish to remain connected to a node for a long period of time – to monitor traffic, or be able to use the node at various times. At some point you may wish to disconnect from the node.

2. Type **rpt fun** [*node1*] ***1**[*node2*] and press Enter. Again, [*node1*] represents your node number and [*node2*] represents the remote node number. Also, spacing must be exactly as shown.

3. You should hear your node radio over HT report that the remote node is disconnected from your node.

VI.   Extras

A. WinSCP – WinSCP is a terminal emulation program, file transfer program, and file editor combined in one package.
   1. Use the Setup program to install WinSCP on a Windows computer used to communicate with your AllStar node. Place an icon on the desktop.
   2. Start WinSCP by double-clicking on the icon.

3. Enter the IP address,port number (222), and user name (root) for the node at the indicated places on the startup window.
4. It is useful to save a session with this information for later reconnection to the node. Use the "Save" pull down arrow to "Save as" an instance for later use.
5. If you saved a session, double-click on the icon to start WinSCP, otherwise, click on the "Login" button. Either way, enter the password at the prompt.
6. Once the WinSCP main screen comes up, you will see two browsing windows. On the left hand side is a browsing window of the local computer, that is, the Windows computer you are running WinSCP on. On the right hand side is a browsing window of the remote computer, or the node that you have logged into.
7. You may browse the directories and files of either computer.
8. You may transfer files from one computer to another by simply dragging and dropping.
9. You may edit files by double-clicking on the file name. WinSCP will then launch a screen file editor. Windows users may find this editor easier to use than Linux editors.

B. Supermon 6.1 - Supermon allows management of your Allstar system from a web browser from anywhere inthe world. Please see https://hamvoip.org/supermon_howto.pdf for installation and user instruction for Supermon.

C. RPT.CONF – For those who are interested, the documentation at https://wiki.allstarlink.org/wiki/Rpt.conf provides information about RPT.CONF, the file that implements most of the user functionality and DTMF commands for the node. This file requires a good understanding of Linux command language, but advanced node capabilities can be implemented within this file.

D. DTMF Function List

```
*1<node>     - Disconnect from a link
*10          - Disconnect from the last link you connected to
*2<node>     - Connect to a link (monitor only)
*3           - Connect to a link
*51          - Play macro (Time and ID)
*70          - System status
*71<node>    - Disconnect permanently connected link
*72<node>    - Permanent connect to a link (monitor only)
*73          - Permanent connection to a link
*75          - Full system status
*76          - Disconnect all links
*77          - Reconnect previously disconnected links
```

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D. DTMF Function List (continued)

    *80   – System info
    *81   – Time (12 hr. format)
    *82   – Time (24 hr. format)
    *83   – Full link status
    *980   – Allstar version
    *A1   - Say local IP address
    *A3   - Say public IP
    *A5   - Say registration status
    *A9   - One time parrot (Say your message and release PTT)
    *B1   - Halt your Pi (Must cycle power to restart)
    *B3   - Reboot your Pi
    *B6   - Restart Asterisk

Note: These can be modified in the functions stanza in rpt.conf

VII.   Trouble Shooting Tips

A. Hardware

1. Radios
   a. Ensure both the node connected radio and the HT to be sure they are on the same simplex frequency.
   b. If using CTCSS (PL) tones, ensure both radios have the same tone and encode/decode settings.
   c. Ensure the node radio squelch control is sufficiently advanced.

10. Host Computer (Raspberry Pi)
   a. Ensure the host is receiving power.
   b. Ensure the Ethernet cable is fully inserted into the connector, and the Ethernet circuit is active.
   c. Ensure the DINAH modem is fully seated in the USB connector.
   d. Ensure the DIN cable is fully seated in both the DINAH and node radio connector sockets.
   e. Ensure the micro SD card is fully seated in the card reader.
   f. Ensure that the green light is flashing while the Raspberry Pi is powered.

E. Software

1. Have the HT on and tuned to the node radio as the node is powered up. Ensure that the node announces its IP address while completing the boot up process.

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2. Connect to the Pi with the PuTTY SSH terminal software. Ensure the correct IP address and Port number (222) are entered in the terminal software. The Pi should respond with a prompt to login.
3. Login to the Pi. Be sure the username is **root** and the password is the password that was set during the configuration process. If login is completed the Pi should display the "Admin: menu screen.
4. Select item 11 from the "Admin" menu to start the CLI client.
5. Type **rpt fun** [*your_node*] ***80** - system info command. The node should transmit [*your_call*] /R in CW heard on the HT. If OK, then skip to step VII-E-10. If not OK, proceed to next step.
6. Type **exit** (Enter) to return to the "Admin" menu. Select item 12 to start the simpleusb-tune menu.
7. Type **v** (Enter). Inspect all of the settings displayed to be sure they are the same as the original settings enabled in the configuration process.
8. Return to the simpleusb-tune menu. Inspect the "currently" set values of items I and J to be sure they are the same as the original settings enabled in the configuration process.
9. Make any adjustments required to return the settings to their original values.
10. Type **rpt fun** [*your_node*] ***3**[*repeater_node*] – connect to a local repeater node. If OK, problem should be solved. If not OK, proceed to next step.

F. Function Commands

1. Ensure that the commands are entered with the proper spacing.

   Example: **rpt fun 12345 *367890** – connect command

   There are spaces between **rpt** and **fun**, and between **fun** and the first node number. There is NO space between ***3** and the second node number.

2. Ensure that the node is properly able to identify all of the digits from the DTMF keypad on your radio microphone.

3. Ensure that you are in the CLI client, item 11 on the "Admin" menu, before attempting to issue function commands.

If all of these trouble shooting tips fail to resolve the problem, attempt to locate a local subject matter expert for advice. In addition, support is available from AllStarLink.org under the "Support" tab of the menu.

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