DVSwitch on the HamVoip AllStar Node

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Who learned this from Brad - N8PC and James - AA5PD

I can not stress the first point enough. **MAKE A BACKUP COPY OF YOUR CURRENT ALLSTAR SD CARD NOW!!!**

This step has saved me SOOOOOO much grief in the past after learning the hard way. If you break your node the backup SD card image with get you back to square one and back on the air right away.

Ok, with that said let's go drive ourselves crazy.

Before you begin anything you MUST have a DMR ID issued by RadioID.net and you must have a Brandmeister account already setup. And you must have already logged into that Brandmeister account and entered in a HotSpot security password in the Selfcare section. If you have already completed these steps you can continue.

First things first. SSH into your node and hit option 1 and do a System Update. Next for good measure, hit option 13 and restart the ASTERISK server.

Now you can hit number 9 and get to the BASH SHELL INTERFACE. Once you are at the command line you need to type cd and hit enter to ensure that you are in the root directory.

Once there type in this command and run it:

bash <(curl -s http://dvswitch.org/hamvoip)

This will download the install file needed and uncompress it. This version was made to be used on a fresh install of HamVoip but it can also be installed on a configured version as well. Once it is downloaded and installed, reboot the entire node.

Once rebooted we need to change the directory.

cd /usr/local/dvs/

Once there type dvs to run DVSwitch

Once there it will ask you some initial setup information like language and you can answer it and then get to the main menu and do a basic setup of DVSwitch.

Watch the video closely for the areas you need to enter your Brandmeister information into

The initial setup will ask for Callsign DMR ID and CCS7/DMR ID plus a 2 digit number. If you have ever setup Brandmeister or TDIF DMR networks on a PiStar you know that there must me an extra two digit number that you come up with to add onto the end of your seven digit DMR ID number, sometimes referred to as an SSID or 2 digit suffix. This two digit suffix number can be 00 to 99 as long as it is not being used on another device.

The D-Star and NXDN sections can be left at the default as this tutorial is just for a Brandmeister DMR configuration.

The USRP Port can be left at default

Then the Input settings will be shown for the Analod_Bridge.ini and then you can hit YES to continue.

Then you will be prompted to select you local Brandmeister Server. Scroll down the list with your down arrow on your keyboard and once you have your selection highlighted then hit the TAB key to get to the OK button and hit enter.

Here you will be prompted to enter your Brandmeister Selfcare password that you would have setup in your Brandmeister account under the selfare section in the HotSpot Security window. This must be done before starting this process. The default will be passw0rd, but you must remove it and enter your hotspot security password that you created.

Next is the hardware VOCODER (AMBE) menu
This part can be just a tad tricky, at least it was for me.
Just down arrow to "No Hardware Vocoder Use Software Vocoder" and hit enter.

Then you will get the Input Finished menu and you can just hit enter. Then DVSwitch will Process the Initial Configuration and start the DVSwitch services.

Then at the Main Menu select option 2 for "Advanced Configuration - TG/Ref Manage, Macro, DMR Networks"

TG = Talkgroup
Ref = Reflector
Macro = Macro
DMR Networks = Brandmeister, TGIF, DMRplus, etc.

You can enter into menu 21 for the Freq, Pwr, Lat, Lon information. I do not think it is required but it may help you later for reference if you have to do any troubleshooting.

Now you can enter into menu 22 to configure Favorite TG/Ref and once inside that menu you can make changes to the favorites list under each digital service. I don't know much about this

yet. BUT once I looked it all over I did go ahead and select menu 6 to PUSH TO DVSM/UC. I am not exactly sure what that means but once I do I will update this tutorial.
Then I goto to number 8 BACK and return to the previous menu.

I don't mess with menu number 23 Ad Hoc Menu & Marco so I skip on down to menu 24 for Additional DMR Networks

The first option is to Change Default DMR Server. It's always good to select this and select Brandmeister again though it may not be necessary. Then go down to number 3 and hit enter to return to the previous menu.

Now hit number 2 to Configure DMR Server

Then hit menu 1 for Brandmeister Network then it will show you the current settings and if they are correct then you can indicate NO to not make any changes or you can indicate YES to make changes. Once you are back to the Configure DMR Server menu you can down arrow to item 6 and go back to the previous menu then down arrow to menu 3 to goto the previous menu then menu 25 BACK to goto the MAIN MENU.

Now you are going to want to go to menu 3 TOOLS and hit enter. And then goto menu 32 Configure .ini files.

Hit menu 1 for Edit Analog_Bridge.ini then once inside the ini file down arrow until you get to the section that states
"The metadata below is used when ASl is the source since it does not have any concept of digital modes"
Then down arrow to the line that starts out with txTg= an then enter the Brandmeister talkgroup number here. I used 3143399 since it is my Digital ID number.

Then down arrow to the [USRP] stanza and we will make some audio settings changes that will help make your voice a little more understandable in analog.

Go to usrpAudio and change it to **AUDIO_USE_GAIN**
Change usrpGain = **3**
Comment out **usrpAGC = -20,10,100 -** This is accomplished by placing a semicolon in front of the line to deactivate it.
Change tlvAudio to **AUDIO_USE_GAIN**
tlvGain = **0.35**

Once this is done you can do a CTL+X and hit Y to save and enter to exit.

Next you can goto menu number 2 Edit MMDVM_Bridge.ini and just take a look around and make sure your Brandmeister password is correct.

If everything is okay or you make any changes, once you are done just hit CTL+X and Y to save and enter to exit.

Then down arrow to menu 8 Edit DVSwitch.ini and down arrow to the [STFU] stanza
Once you are there go down to StartTG = and enter the Talkgroup in Brandmeister you want there I used 3143399 once again.

Once this is done hit CTL-X Y to save and enter to exit.

Down arrow to number 9 BACK and return to the previous Menu.

Then you can down arrow to menu 37 and Reboot RPi Server. This will reboot your entire AllStar Node.

Once your Node reboots you we need to make sure a few things have been done. As you seen in the beginning of the video we need to ensure that the proper changes have been made in allmon.ini and manager.conf and rpt.conf

First goto /etc/asterisk/
Then nano manger.conf and scroll down to the admin stanza close to the bottom. In the line that starts with secret = you should see that the password has had some strange letters placed in front of your original password. Take the strange letters out so that your password is back to it's original form and save and exit the file. (CTL+X, Y to save and enter to exit)

Once you are back to the command line then we need to change directory to

cd /srv/http/supermon/

Then nano allmon.ini

```
  GNU nano 2.5.3                    File: allmon.ini

[576333]
host=127.0.0.1:5038
user=admin
passwd=Password2023
menu=yes
hideNodeURL=no

[1999]
host=127.0.0.1:5038
user=admin
passwd=Password2023
menu=yes
hideNodeURL=no

[All Nodes]
nodes=576333,1999
menu=yes
```

I like to make sure that the passwd= in both node stanza's are the same. I do not know if this is necessary but I do know that my configuration works. Then goto the [All Nodes] stanza and make sure the nodes= is your Primary node then a comma then your private node number. Ex: nodes=576333,1999   with no spaces just as pictured above. This gives you the menu option on your Supermon page. Once finished hit CTL+X, then Y to save and enter to exit.

Now comes the fun part. We must paste in some lines to the private node stanza in the rpt.conf file. **Make a backup of your rpt.conf file before making any changes in case something goes wrong.**

As I have mentioned before I like to use FileZilla to do this so it is a little easier to modify the file. See video for details.

Once you have the rpt.conf file open in the text editor you must paste in these lines Thank EXACTLY as they appear here. Yes they may be a better way, I just know this configuration works for me more than 4 times now.

These lines must be pasted in right after this line

;rxchannel=Radio/usb1999
                                    ; Example usbradio channel driver

And it has to be before this line entry:

rxchannel=dahdi/pseudo
                                    ; Example pseudo channel driver

(See next page for the lines that need to be copied and pasted)

rxchannel = USRP/127.0.0.1:34001:32001

duplex=0

hangtime=0

althangtime=0

holdofftelem=1

telemdefault=0

;telemdynamic=0

eannmode=2

linktolink=no

nounkeyct=1

;totime=180000

;idrecording=/etc/asterisk/local/node-id

;idtalkover=|ie

archivedir=/var/log/asterisk/tmp/

Once they are pasted in then you can save the file and make sure it is uploaded back into the AllStar node. Then I like to reboot the node just for good measure.

Once your node has rebooted then you need to log into your Supermon and then select ALL NODES from the top menu
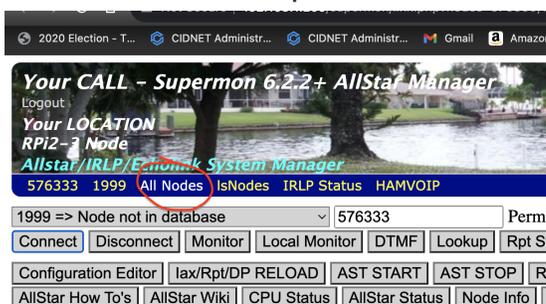
So that you can see both your Public node and Private Node like this:

Then goto the node selection menu and change it to the Private node and type in the number of the Primary node in the text box window and click on the Connect button and see if the two nodes connect, one to the other.

Connected:

| Display Configuration | [CPU: 90°F, 32.6°C @ 10:53]

[Weather conditions for Your LOCATION 33904: 84°F, 29°C / Mostly Sunny]

Node 576333 => KD5FMU 146.400 Trainer Node Bubble Chart lsNodes						
Node	**Node Information**	**Received**	**Link**	**Direction**	**Connected**	**Mode**
576333	**Idle**					
1999	Node not in database	001:04:59	ESTABLISHED	IN	01:49:35	Transceive

Private Node 1999 => Node not in database lsNodes						
Node	**Node Information**	**Received**	**Link**	**Direction**	**Connected**	**Mode**
1999	**Idle**					
576333	KD5FMU 146.400 Trainer Node	001:49:28	ESTABLISHED	OUT	01:49:35	Transceive

-

System maintained by: *Your NAME, Your CALL*

Now your AllStar node should be passing audio to your Brandmeister and vice versa. Note: It may take Brandmeister 1 to 5 minutes (sometimes) to synchronize with your AllStar node.

If it doesn't work, double check all your settings and start asking questions. Hope this works for you on the first try.

73 and "Ham On Y'all !"