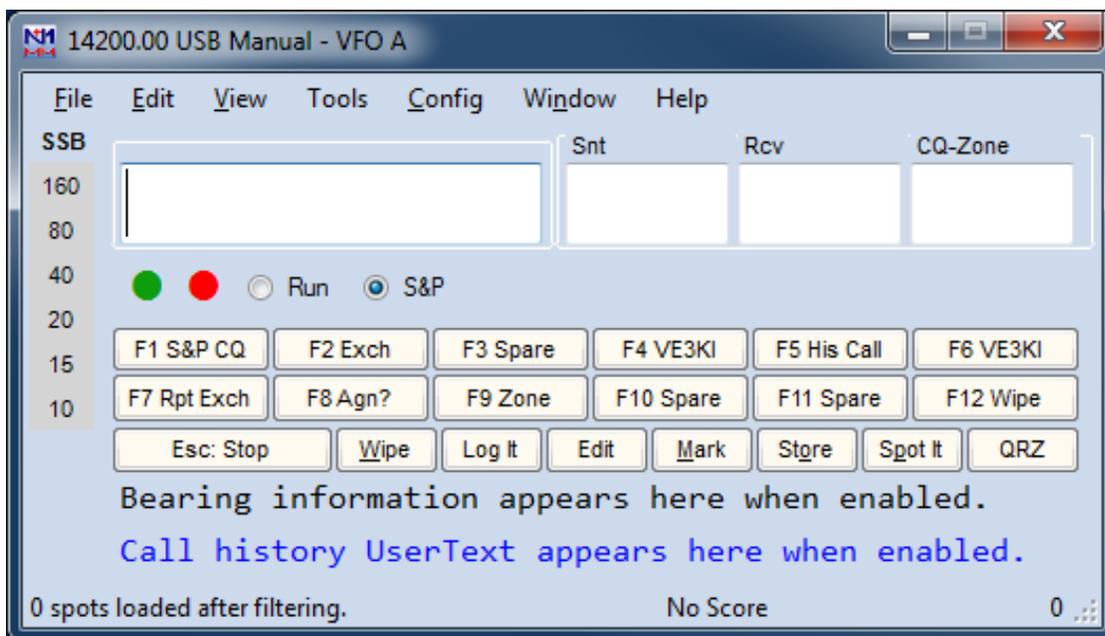


## Transverter Switching with N1MM Logging Program

If you have a transceiver without a Band Control output function, you have the option of utilizing a logging program to switch and track the Multiband transverter bands you are operating on. Leaving your 10 M transceiver on 10 meters and making a mouse click to change frequencies has an advantage in keeping correct records. You can do this with the provided standard manual switch but it is an extra step if you are computer logging. There are a few logging programs that will perform this described process but this document will focus on the N1MM+ program for band controlling the multiband transverters.

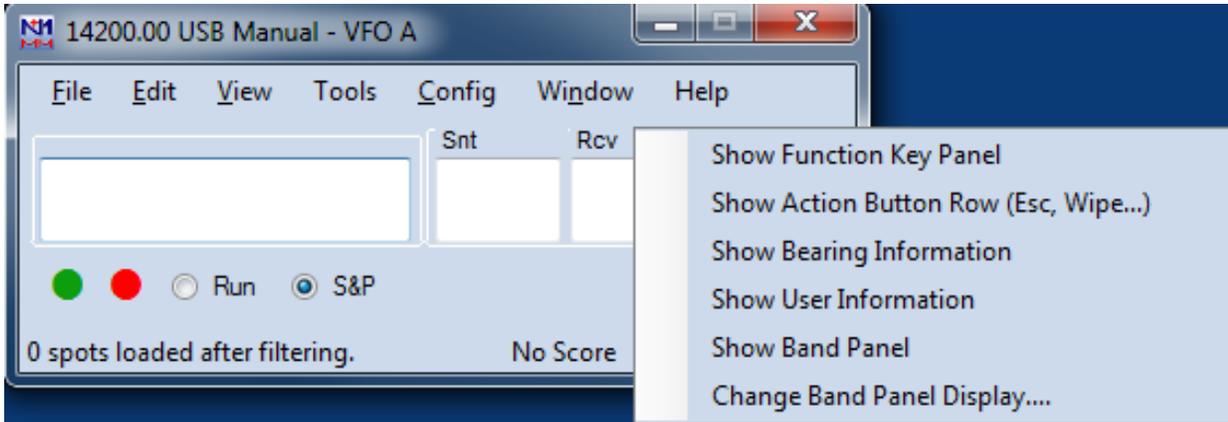
This document will not go into the details of how to download and set up N1MM. It is assumed that there is a basic understanding of the N1MM program. If you have a logging or set up concern, the answer is in the manual and it should be read carefully to have you questions answered. What will be described in this document is how this program can simplify the switching of the V/U and Microverter multiband transverters and explain how to set it to perform Multiband transverter switching. It should also be understood that this basic set up describes the use of computer with a 25 pin LPT output jack for the set up. If any computer being utilized only has a USB serial or 9 pin COM port jack/adaptor device, simulating or routing of the BCD control signals will be up to the user. It is possible to do but will not be discussed in this document.

Now having the understanding of N1MM, we will start with the general LOG ENTRY window as show below.

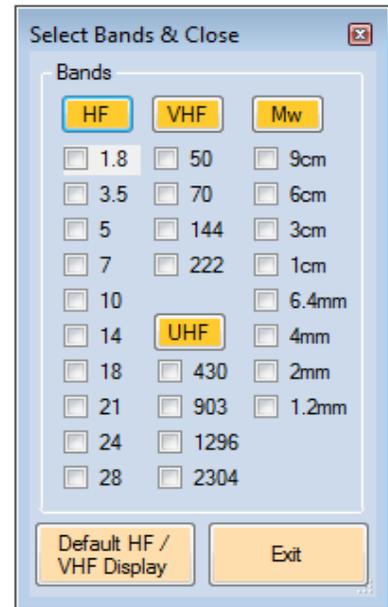


After the start up and selection of contest or just general logging out of the stored files, the program sets all of the required parameters in this LOG ENTRY window to just enter data and log with the enter key. But this panel also is the heart of the program. The Bands listed on the left (the Band Panel) may be "Left" clicked on and the program will change bands. If this was a VHF

contest, it would have VHF bands listed. If you right click on an empty spot of the window, it will bring up a sub window as shown next.



Click on 'Show band panel" and it will bring up a list of bands that you may add or delete from the band panel portion of the LOG ENTRY window. As you can see (on the right) there are bands listed that you may have never operated on. Just check the boxes that represent the bands you will use with the multi band transverter. If you just have the V/U XVERTER, check boxes 144, 222, 432, 903, 1296 and any band you wish to assign to the AUX band of the V/U transverter. If you also have the MICROVERTER continue clicking bands through 3 cm and any additional microwave bands the AUX port may be connected to. You should also check the 50 MHz box if you will be operating that band.

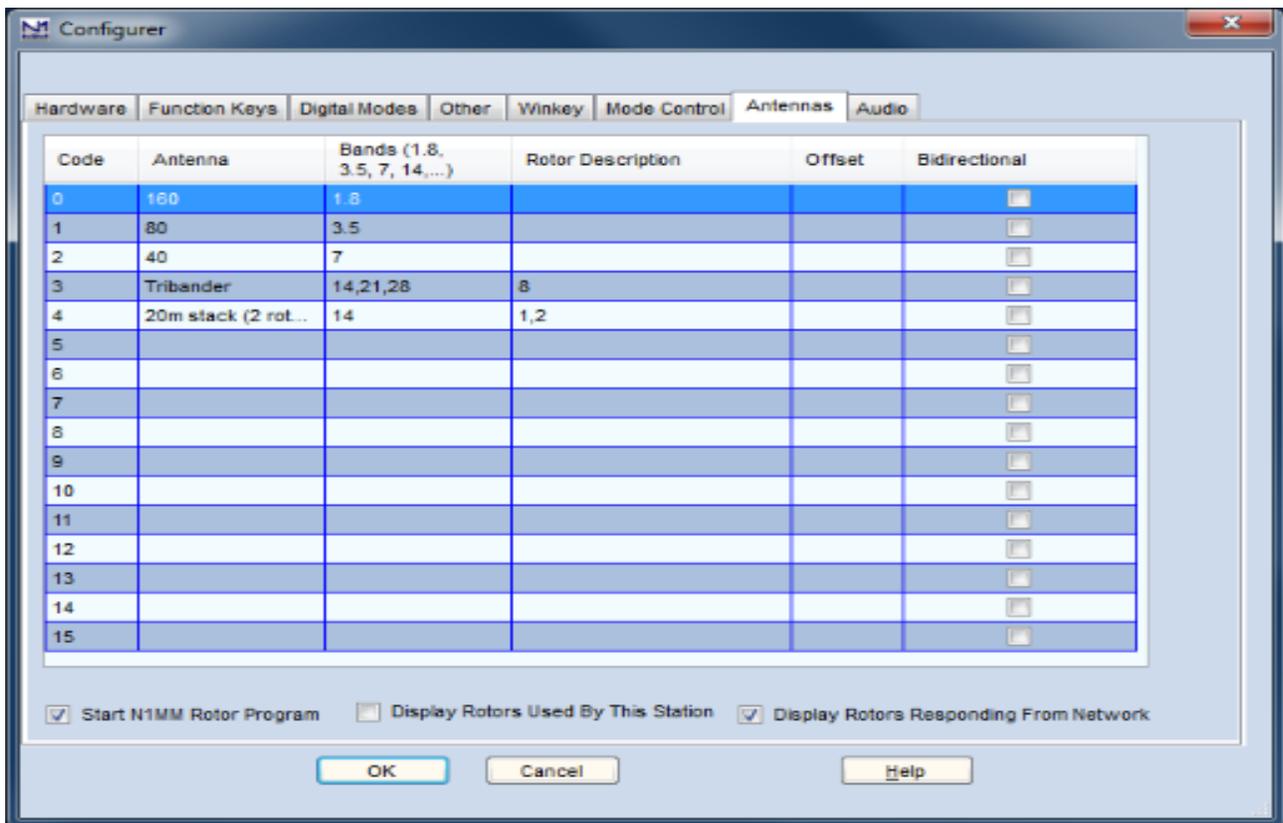


When complete, click the "Exit" box and the program will return to the entry window and will show the band assignments set up in frequency order. Also, In the set up of any VHF and above contest you have the option of signifying what modes you will be using. These modes will be listed per band if you desire to log QSO's per mode. If you use the CW send function of N1MM, be sure you have the CW mode per band indicated. You can then build the LOG ENTRY box with the other information available like Beam headings and action buttons but it will have nothing to do with the transverter set up.

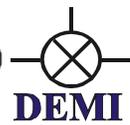
To test, you can just click on a band box or type the desired operating frequency in the Call Sign area and N1MM will change the log entry frequency to that band and record the QSO on that band only. Enter a couple of test QSO's and change bands or modes and verify that it records the information correctly in the Log. Once verified you can continue with the set up using this information to control the band data to the transverters.

An older Windows 7 computer that has a LPT port is the easiest to set and use. Yes, Old school but--- it works great and what else would you do with a old clunker computer like that? The LPT port has the ability to send BCD through pins 9, as BAND A, Pin 8 as BAND B, Pin 7 as BAND C and Pin 2 as BAND D. N1MM will generate 16 separate binary codes starting with 0001 and ending with 1111.

Looking at the top of the LOG ENTRY window you will see a row of small text. If you have gone this far with this program (Install, set up and played with the functions), you will understand the functions of the top row text already. So, click on the "Config" and then select "Antennas". The screen will look like the next pictorial plus/minus the text in the boxes.



As shown, there are code numbers listed 0 through 15. This list is the 16 binary codes in order following the standard format with Code "0" equaling "0001" BCD output and then counting up in binary for the next 15 codes. The only important item you need to input in this chart is under "Bands". You need to assign the bands in order using the correct band frequencies the N1MM will recognize. Starting with CODE "0", enter "144" in the column labeled "Bands". You can continue in order to the next higher band of "222". You need to be sure that what you enter in the "Bands" column is recognized. Any diversion or error in entry and the program will not switch. There is the correct band frequencies listed in the N1MM manual but is also found on the next page of this document. Continue assigning the Bands to the codes. If you are just setting up the V/U VERTER you can stop at Code 4. But if you wish to assign the AUX port of the transverter to a higher Microwave transverter, continue with the band assignments until you reach the band the AUX port



will be connected to or if you have the MICROVERTER, continue in order to 10000 MHz and then select a frequency to assign its AUX port. Be sure to use the correct band assignment frequencies listed below. They are listed below and represent frequency in MHz.

**50, 144, 222, 420, 902, 1240, 2300, 3300, 5650, 10000, 24000, 47000, 76000, 142000, and 241000.**

You may assign all of the codes if you desire because if the Band is not indicated in the LOG ENTRY box, it will not switch to it. Another example of this is if you do not have a 222 MHz antenna or system, leave the 222 box un-checked and it will never switch there but-- it will be set up for when you have the antenna next time. So again, be sure you enter 420 for the 432 MHz band and so on as listed above. You can enter any notes in the Antenna column or set up the Rotor function if desired but that is beyond the scope of this document. When all 'Bands' are set, Just click "OK" to close the box.

With a 25 pin LPT port, the outputs of pins 9, as BAND A, Pin 8 as BAND B, Pin 7 as BAND C and Pin 2 as BAND D along with ground, will contain direct BDC output and can be directly connected to either Multiband transverter. A simple mouse click on the Established band button found in the LOG ENTRY or typing in any frequency within the band (i.e 10368100) in the frequency entry block window will change the bands in the logging program and your transverters while your transceiver remains on 10 M. Below is the pin out of the transverters DB-15 with the BCD inputs labeled and numbered. If you receive the transverters and specify that you desire to utilize this method, a marked cable will be supplied. BUT if you simply remove the cable from the manual switch and note where the 4 band control wires are (they are labeled in the manual switch) you can convert it at any time. Or-- ask us for an extra cable.

### V/U Xverter Control Connection Pin out.

| Pin # | Input / Output | Description                             | Maximum Ratings       |
|-------|----------------|---|-----------------------|
| 1     | Output 1       | 144 MHz Band PTT to Ground (P144)       | Sink 50ma@ 15 VDC     |
| 2     | Output 2       | 432MHz Band PTT to Ground (P432)        | Sink 50ma@ 15 VDC     |
| 3     | Output 3       | 902/903 MHz Band PTT to Ground (P900)   | Sink 50ma@ 15 VDC     |
| 4     | Output 4       | 222 MHz Band PTT to Ground (P222)       | Sink 50ma@ 15 VDC     |
| 5     | Output 5       | 1296 MHz Band PTT to Ground (P1296)     | Sink 50ma@ 15 VDC     |
| 6     | Input          | Power On (Enable with positive voltage) | Sink 10 ma@ 1.5-15VDC |
| 7     | Input          | Band Decoder "B"                        | Sink 10 ma@ 3 - 5VDC  |
| 8     | Input          | Band Decoder "D"                        | Sink 10 ma@ 3 - 5VDC  |
| 9     | Output 6       | AUX MHz Band PTT to Ground (PAUX)       | Sink 50ma@ 15 VDC     |
| 10    | Input          | Positive 13.8VDC                        | Sink 1.0 A @ 15 VDC   |
| 11    | -----          | Negative DC Ground                      | GND                   |
| 12    | Input          | TX Enable (PTT to GND)                  | Source 5VDC @ 10 ma   |
| 13    | Input          | Band Decoder "C"                        | Sink 10 ma@ 3 - 5VDC  |
| 14    | Input          | Band Decoder "A"                        | Sink 10 ma@ 3 - 5VDC  |
| 15    | -----          | Negative DC Ground                      | GND                   |