FlexRadio Systems®
Software Defined Radios

How To Guide

Setup for SO2R Mode with a

FLEX-6700 and N1MM+

Eric Wachsmann, KE5DTO
Craig Thompson, K9CT

www.flexradio.com

Requirements

SO2R operation on the FLEX-6700 requires the following minimum software versions:
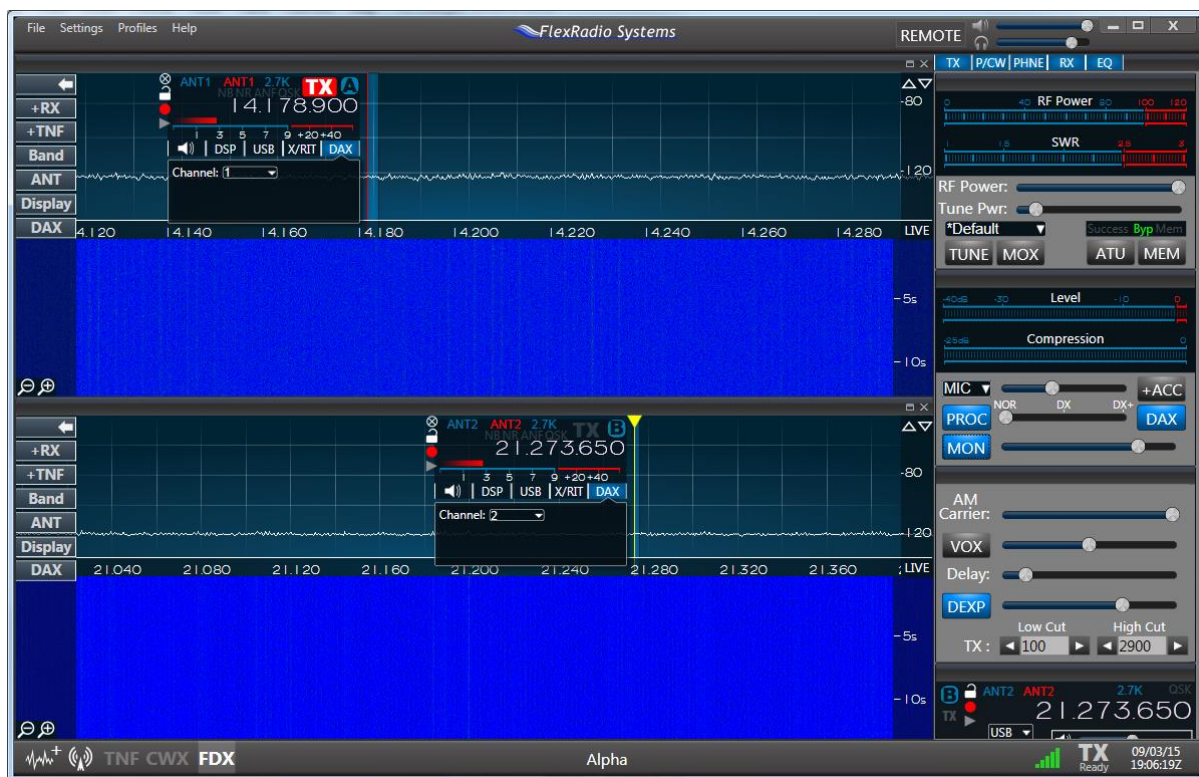
- SmartSDR v1.6+ or greater
- N1MM+ v1.0.1058+ or greater.

Interfacing your FLEX-6700 Signature Series radio to N1MM+ requires setup in 4 applications:

- SmartSDR-Win
- DAX
- SmartSDR Cat
- N1MM+

Setups for these applications are detailed below:

SmartSDR-Win Configuration

Open SmartSDR and set it up like the screenshot above.

From a fresh factory reset of the radio, this will require doing the following:

1. Add a Panadapter and put it on a different band than the first Panadapter (15m is shown here).
2. Set each slice to SSB
3. Set Slice A's DAX Channel to 1.
4. Set Slice B's DAX Channel to 2.
5. Enable DAX on the Transmit Panel (right side, middle)
6. Enable FDX (bottom left)
7. Optionally enable the monitor function (MON) if hearing the voice keyer transmissions locally is desired.
8. Open the Radio Setup Form using the menu options as shown below.
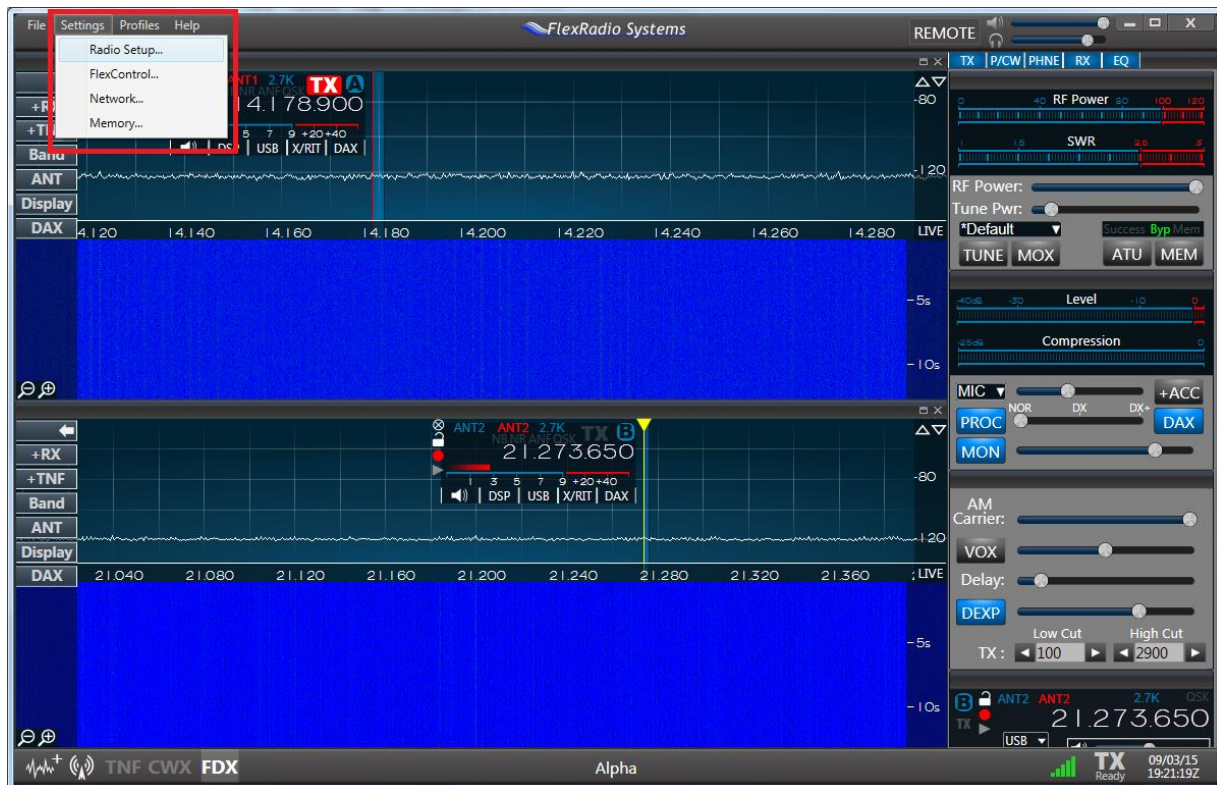

Click on the Radio Setup Tab.
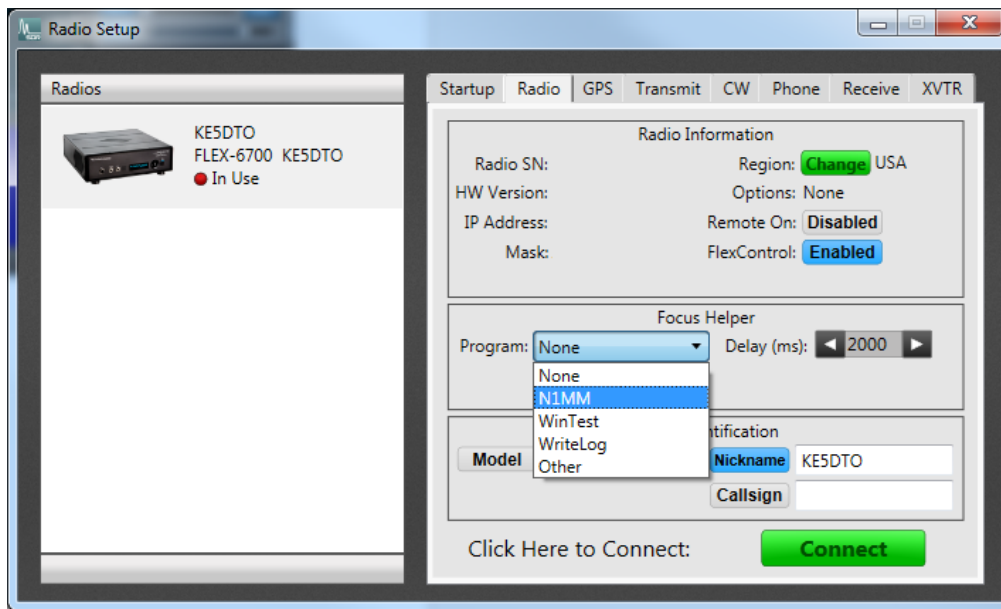
In the Focus Helper section, select N1MM.
Choose an appropriate Delay setting. This is the time to wait after an interaction within SmartSDR (mouse click, entering text in a field, etc) to return the Windows Focus to N1MM.

Once everything is setup, open the Profile Manager by clicking the Profiles -> Profile Manager menu option as shown below.
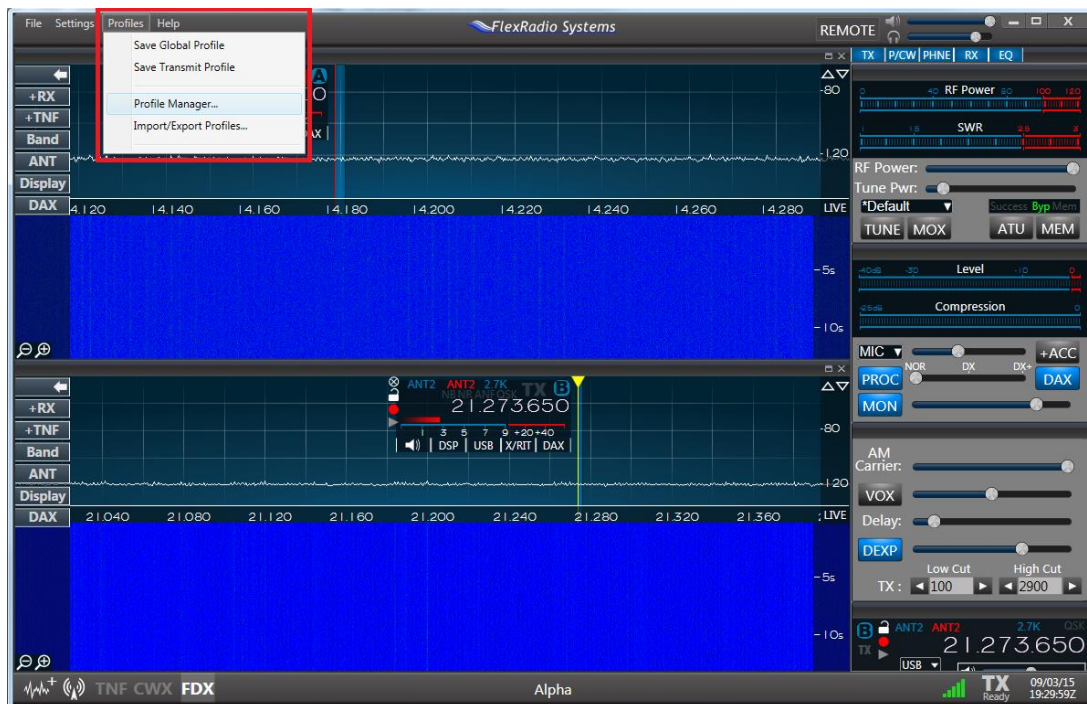
Ensure that the Global Tab is selected. Change the name to "SO2R SSB" and click the Save button to save the profile.
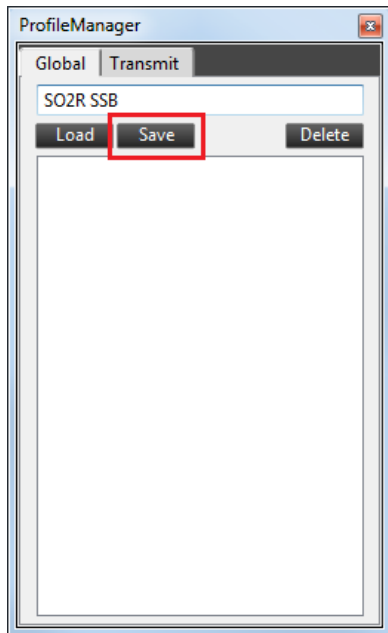
Please note: Loading a Global Profile with "SO2R" in the name is <u>necessary</u> for proper SO2R operation with N1MM.
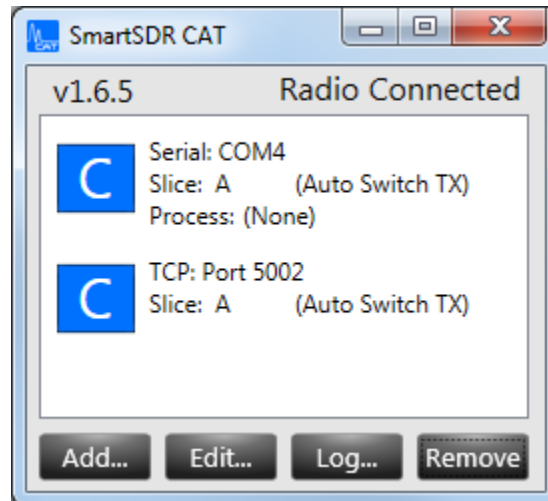
DAX Configuration

Open the DAX Control Panel by double clicking on the DAX desktop icon. Enable the TX Stream and RX Stream Channels 1 and 2 as shown below.
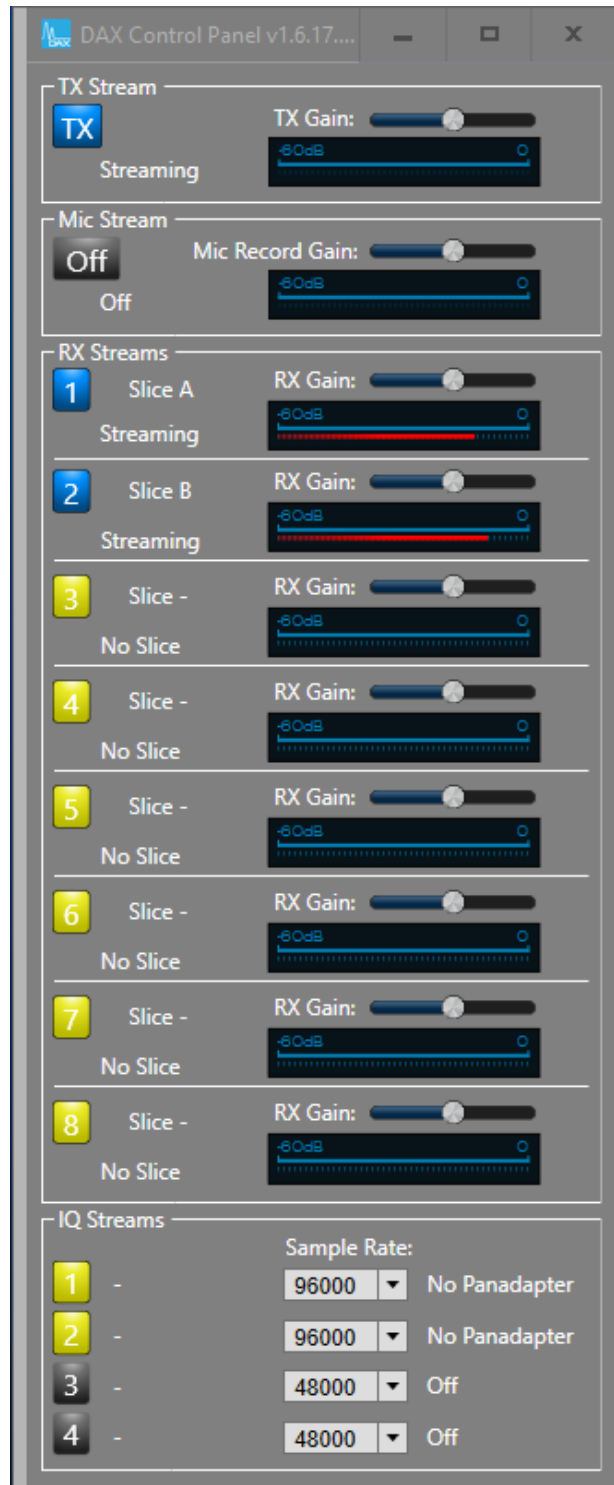
SmartSDR CAT

Open the SmartSDR CAT Control Panel by double clicking on the icon on the desktop (or clicking on the icon in the Task Bar if it is already running).
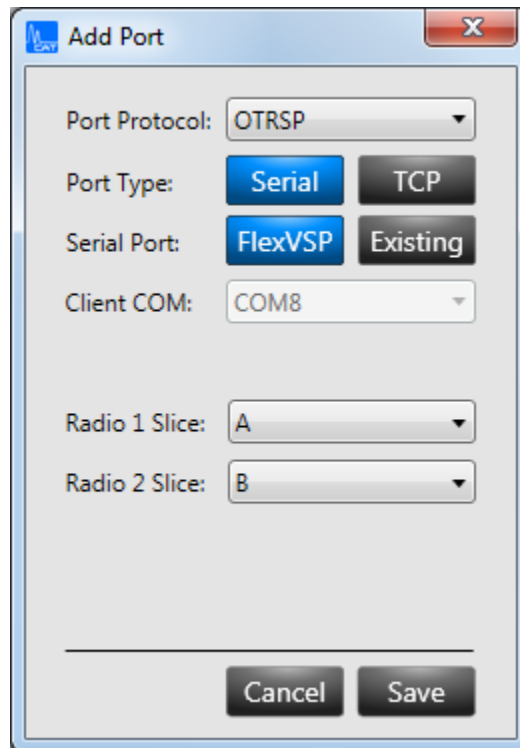

In addition to the default CAT Port, you will want to create several more ports for full N1MM support including another CAT Port (for the 2nd logical Radio), an OTRSP Port for audio switching and control, and a Winkeyer Port for Winkeyer emulation. Click the Add… button.
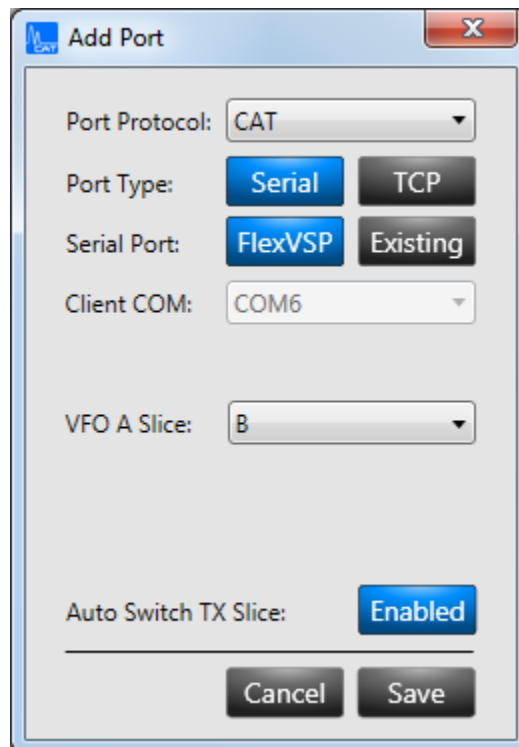
Setup the Port details as shown in the screenshot above to create a CAT port for the "2nd Radio" (will actually use Slice B). Click the Save button and wait for the FlexVSP port to be created (3-4 sec) and the Add Port Window will close.

Click the Add button again to add the OTRSP Port.

Setup the OTRSP Port as shown in the screenshot above. Note that the COM port may be different and the Port will be used later to setup N1MM, so take note of which COM Port is used for each Port Type. Click the Save button and wait for the FlexVSP port to be created and for the Add Port Window to close.

Click the Add button one more time to add a Winkeyer Port.
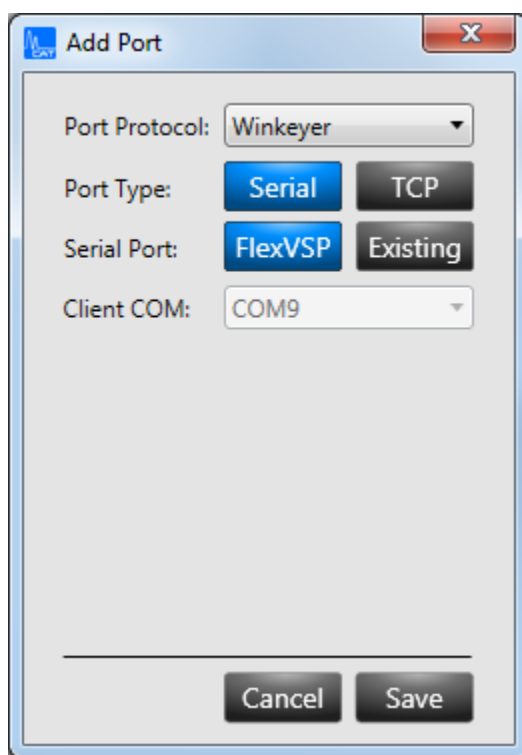
Setup the Winkeyer Port as shown and click the Save button to complete the Port creation process. Once these ports have been added, the SmartSDR CAT Main Window should look like this:
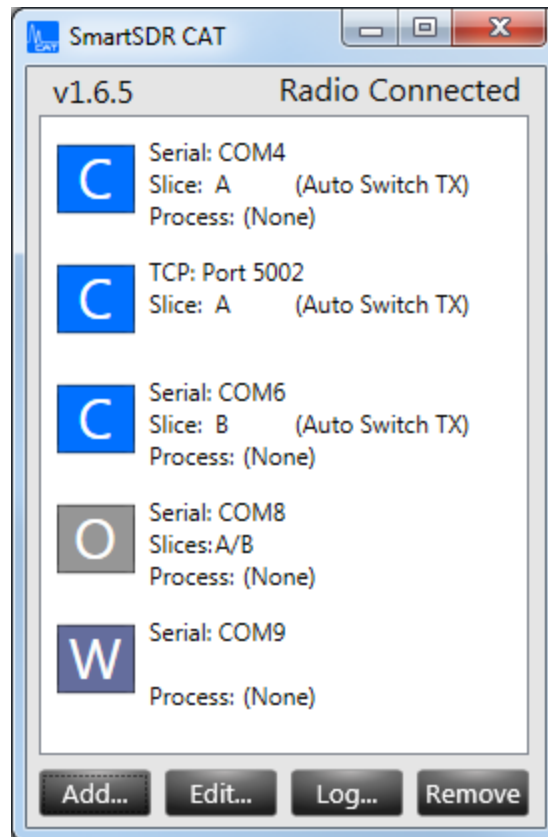
If your Main Window shows "Radio Not Connected" and "Slice Not Present" in red, this just indicates that the radio is not online and SmartSDR CAT isn't yet talking to the radio.

N1MM+

If this is the first time to use N1MM, upon launching the program a form will be presented for entry of details such as your Call sign, QTH, ARRL section, etc. Fill this out and continue to get to the main display.

Warning: It is a best practice to close and restart N1MM upon completing any changes to the Port configuration. Unexpected behavior (keying anomalies, etc) may result from not following this practice. This is especially true if switching to/from external Winkeyer ports from our Winkeyer Emulation ports as communication seems to continue to send signals to both ports until the application is restarted.

Update 2017-02-21: Many of the strange issues associated with the warning above have been addressed.
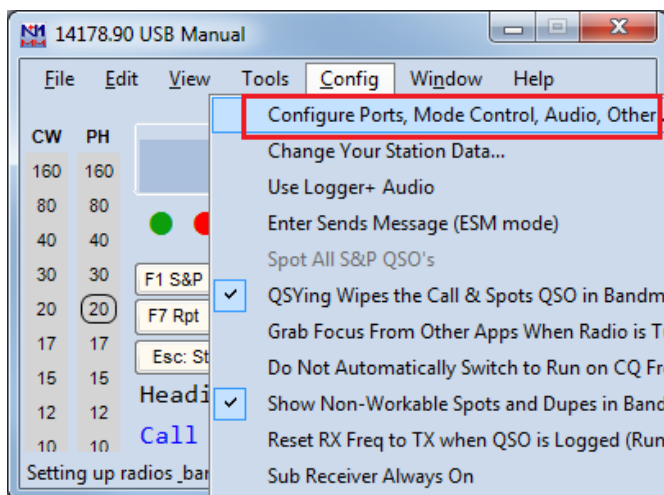
Click the Config -> Configure Ports, Mode Control, Audio, Other... menu option.
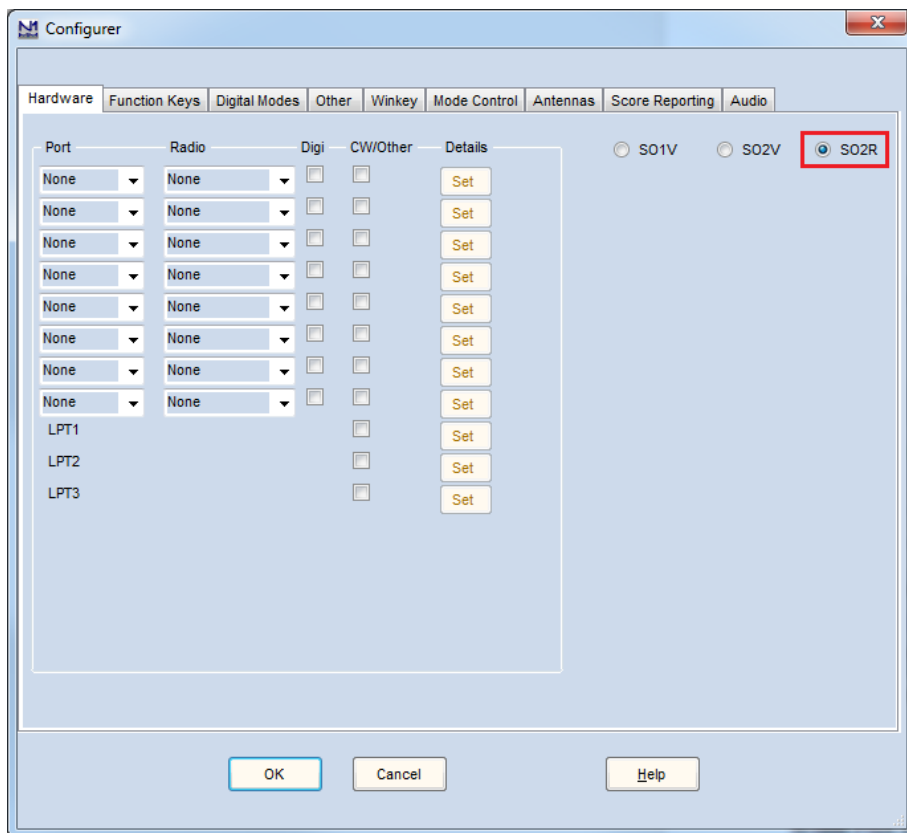
Starting on the Hardware Tab, select the SO2R box on the far right.

On the top row of port definitions, select the main CAT COM port (COM4 in our example). Under Radio, choose FLEX-6000 Series.

Click the Set button under Details on the first row.

Setup the form as shown and click the OK button.

The Configurer window should now look like this. Now fill out the second row similarly for the SO2R Radio (which will use Slice B). Select the SO2R COM Port (COM6 in our example) and FLEX-6000 Series under Radio. Click the Set button on the second row.

Setup the form as shown. Ensure that the Radio Nr field is set to 2. Click OK to close this window.

The Configurer windows should now look like this. The third row will be used to define the OTRSP setup. Select the OTRSP COM Port (COM8 in our example) under Port. Leave the Radio dropdown set to None. Check the CW/Other box and click the Set button under Details.
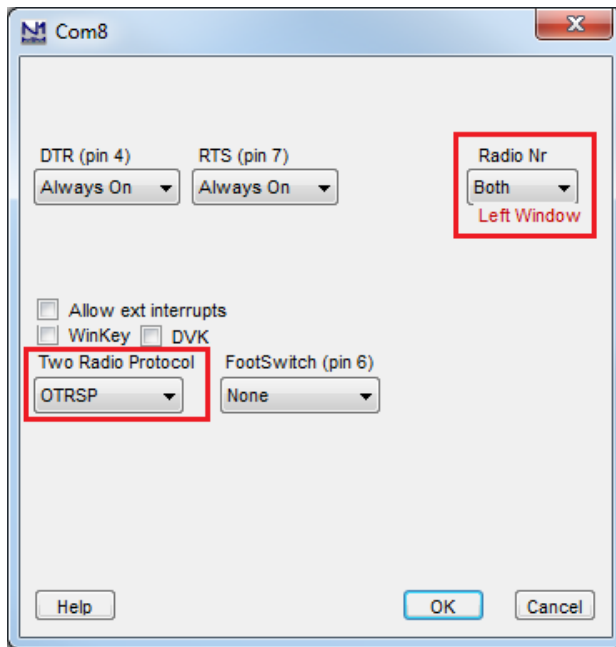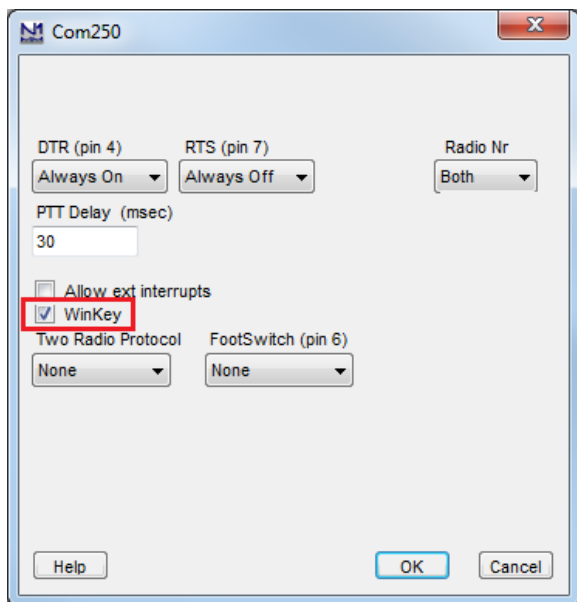
Setup the Form as shown above. Ensure that the Radio Nr is set to Both and the Two Radio Protocol is set to OTRSP. Click the OK button to close the window.
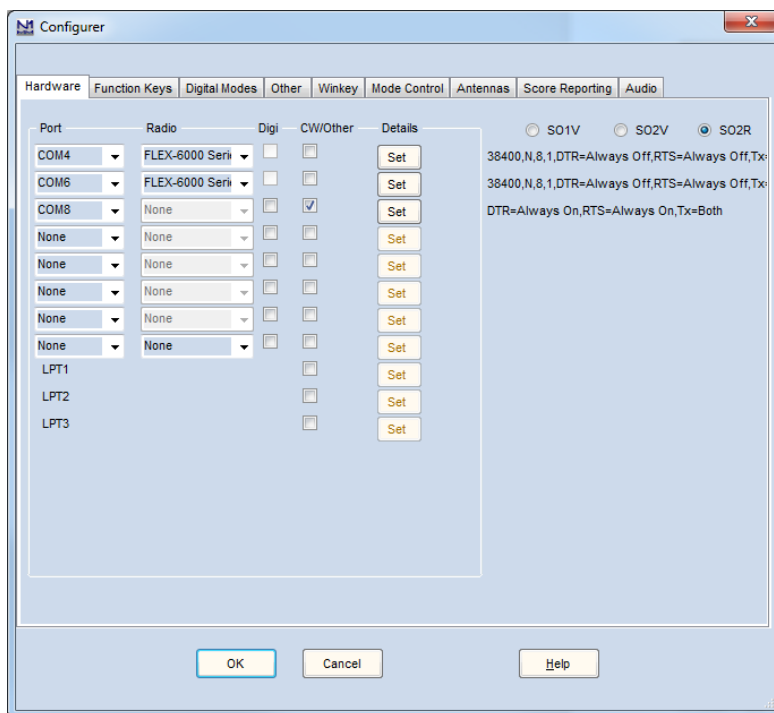
The Configurer window should now look like this.

Optional: If you have a hardware Winkeyer, this can be configured on this form as well. Select the COM port under ports and check the CW/Other box. Then click the Set button under Details.
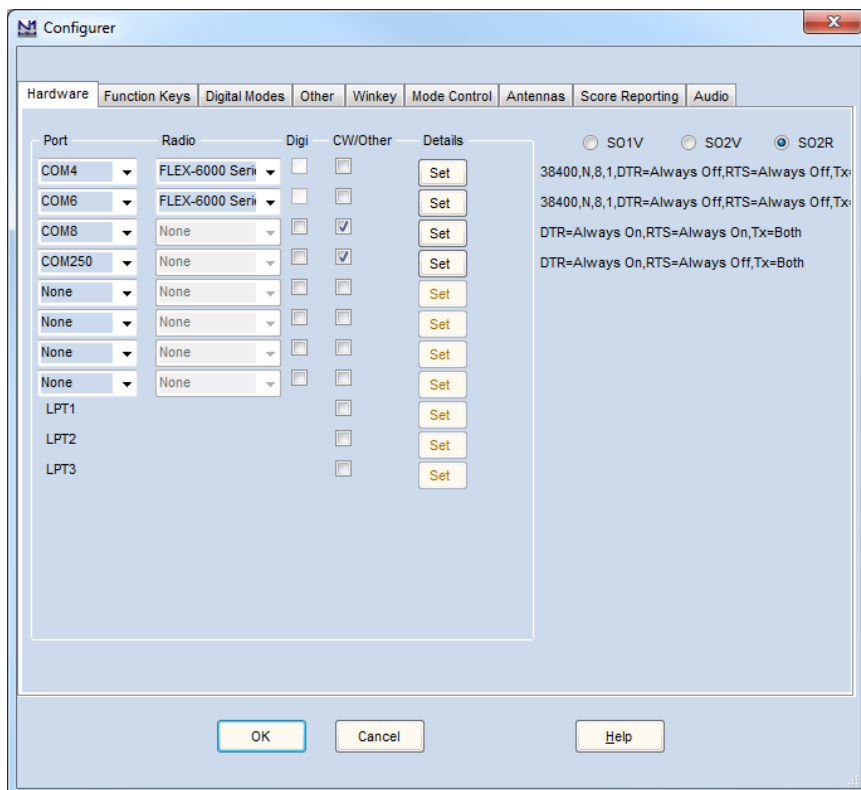
My Winkeyer is on COM250 in this example. Setup the Form as shown. Ensure that the WinKey box is checked. Click OK to close the form.
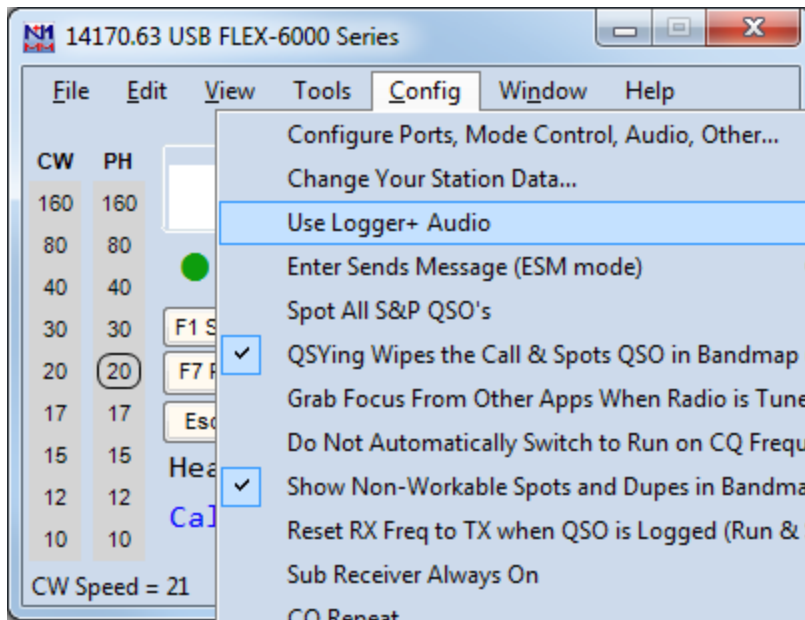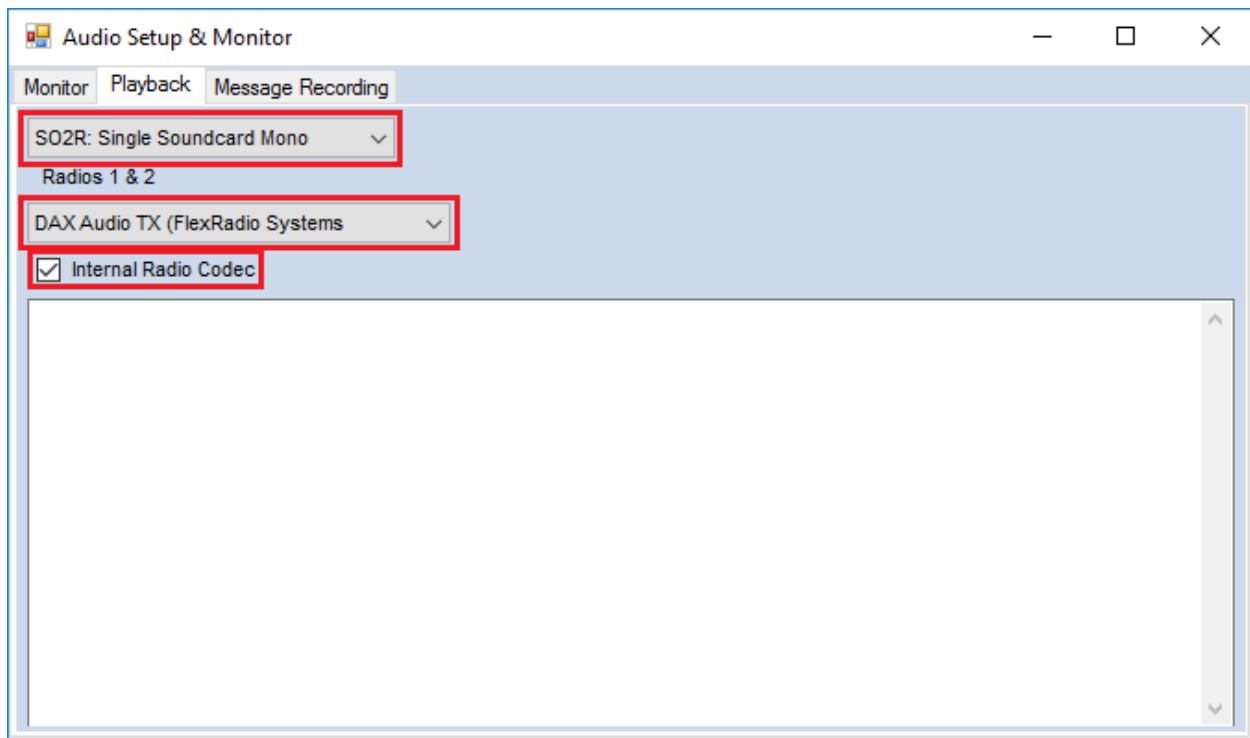

The Configurer form should now look like this. Click the OK button to close the form and save the configuration.

To configure the Audio portion of N1MM, click the Config -> Use Logger+ Audio. This will open a new Window.
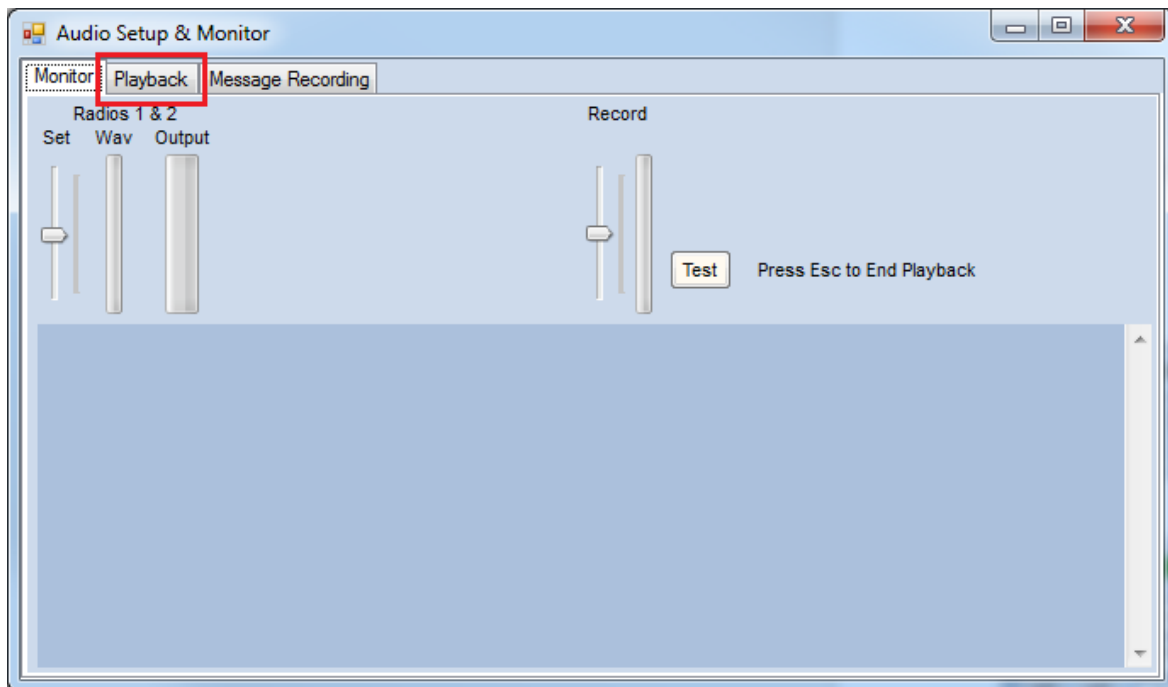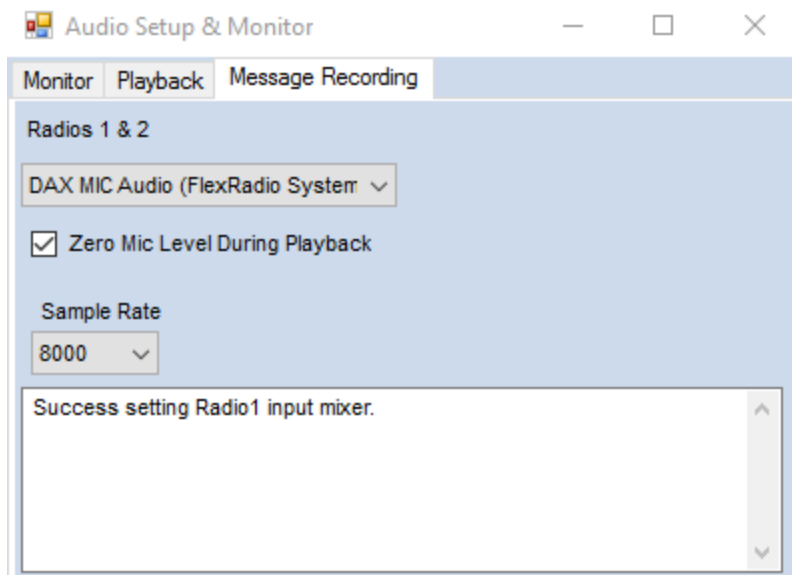

Click the Playback Tab.

Setup the forms as shown above.

Then click the Message Recording Tab.

Setup the forms as shown above.

Once this setup is complete, two N1MM windows should appear, each representing one radio (in this case, Slice A is Radio 1 and Slice B is Radio 2). The Title Bar of the Window should track the frequency of the Slice. Pressing the Break key (above Page Up) should toggle the Transmit Focus (Red dot) between the two Windows. This change should be reflected in SmartSDR as the Transmit Slice is toggled between Slice A and B.

FOR MORE INFORMATION

For more information visit www.flexradio.com or call 512-535-4713.