Yaesu FTDX3000 Sound card digital modes setup using internal USB interface

DIGITAL MODES, EQUIPMENT REVIEWS, HINTS AND KINKS, RADIOS, FEATURED

Getting the FTdx3000 and Ham Radio Deluxe to sing from the same sheet of music using just the radios built in USB port.

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In my PSK31 travels I have encountered other hams also using a Yaesu FTDX3000 with an external interface such as a Signalink. As the radio has a built in interface I am somewhat shocked by this. And when I ask why are they not using the built in interface the most common answer is along the lines of I was not aware that the radio had it built in.

With this in mind I took a few pictures and documented a few settings and leveraging the power of the net and search engines everywhere. Hopefully this blog post on setting up the FTDX3000 for sound card digital modes will prevent a few from doing the hard way, and for those who have already gone the external interface route to change.

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PREPARATION

DO NOT Connect the radio to the PC at this time.

Before diving in you will need a few things in addition to the radio and a PC.

1. Visit the Yaesu website and download the USB Serial driver.
2. Obtain but do not connect an appropriate length Type A to Type B USB cable. Your PC will have the rectangular plug and the back of the radio has square type B plug.

The driver pack on the Yaesu web site has instructions, follow them and install the drivers. Once installed and the radio is connected and powered up you will get various messages in the windows task bar that drivers and being installed and or have been installed and the device is ready for use. The driver install directions on the Yaesu website details all of this.

In this next step we will check and confirm that the drivers are correctly installed.

Via the Windows control panel enter the device manager and expand the **Ports** and the **Sound, video and game controllers** section. Your port numbers may differ from mine which is ok. However if they are missing you have a problem and need to return to the Yaesu driver installation instructions.

Write down the port numbers for the Standard and Enhanced com port you will need these values when setting up the PTT.
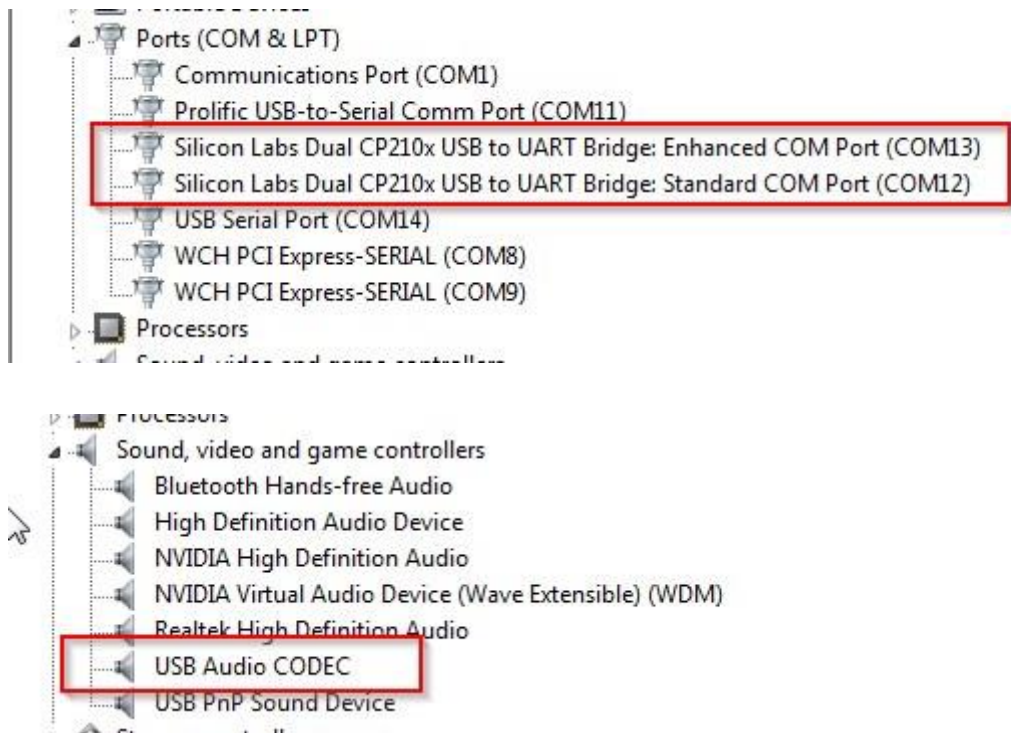
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CONFIGURE THE RADIO

Before we begin to setup DM780 to interface with the radio, we first need to setup the radio side of the connection. When using the 3000 for PSK and other sound card based digital modes. The data mode lets the radio use a different set of interfaces and configuration settings

for example from SSB use. Which is nice as it allows you to flip between data and voice modes without having to reset a series of controls.

Enter the menu system and change option #65 PC Keying to DTR.
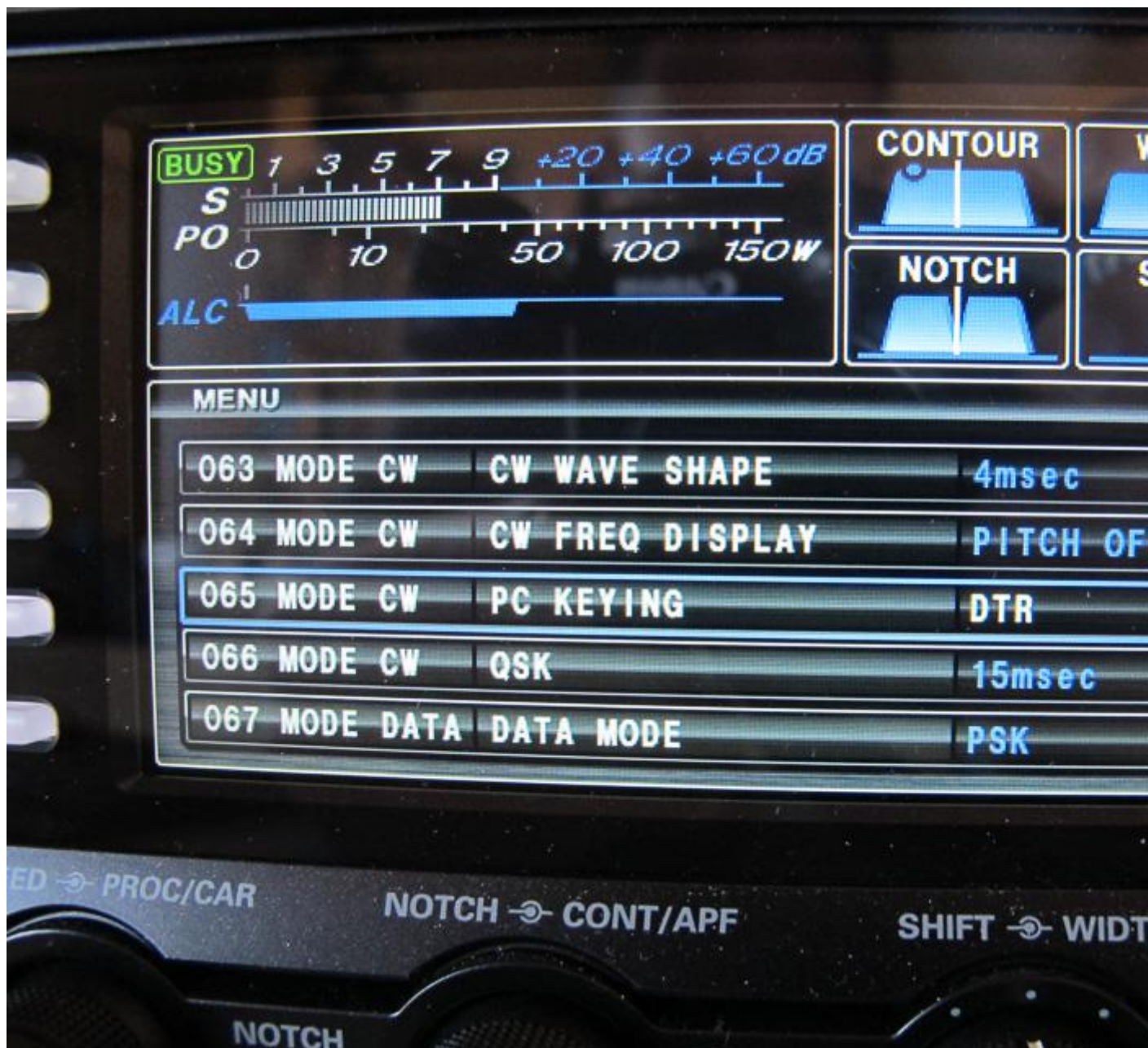
Change item #75 to USB, which tells the radio to source TX audio from the USB audio interface.

The next two items #76 and #77 is the gain settings internal to the radio between the internal sound card and the audio input of the transmitter and the audio output of the receiver. These are the values which work best for me.

Change #037 to use the USB serial port and not the back panel port. Also ensure that CAT RTS #040 is enabled as this will permit hardware flow control with the PC.
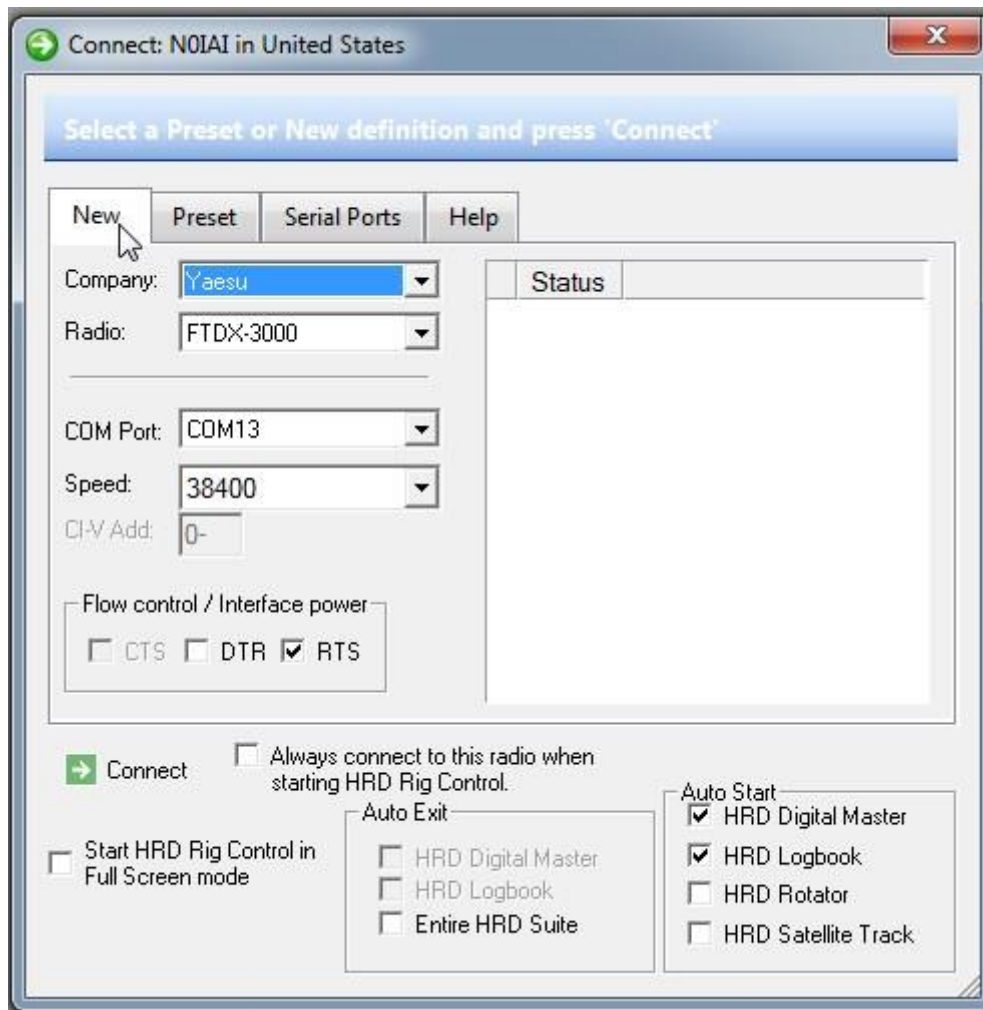
Menu settings applicable to the serial port
When you setup HRD to connect to the radio ensure that the "Enhanced port" is being used
and that the speed is the same as what was set in radio option #038.

Also as shown here ensure that DTR is unchecked and RTS is checked.

Typical serial port settings

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SETUP DM780 – CONFIGURE PTT

I will assume that you have already setup the radio control side of HRD to connect with the radio. It is important that when configuring HRD you use the enhanced port recorded above and not the standard port number.
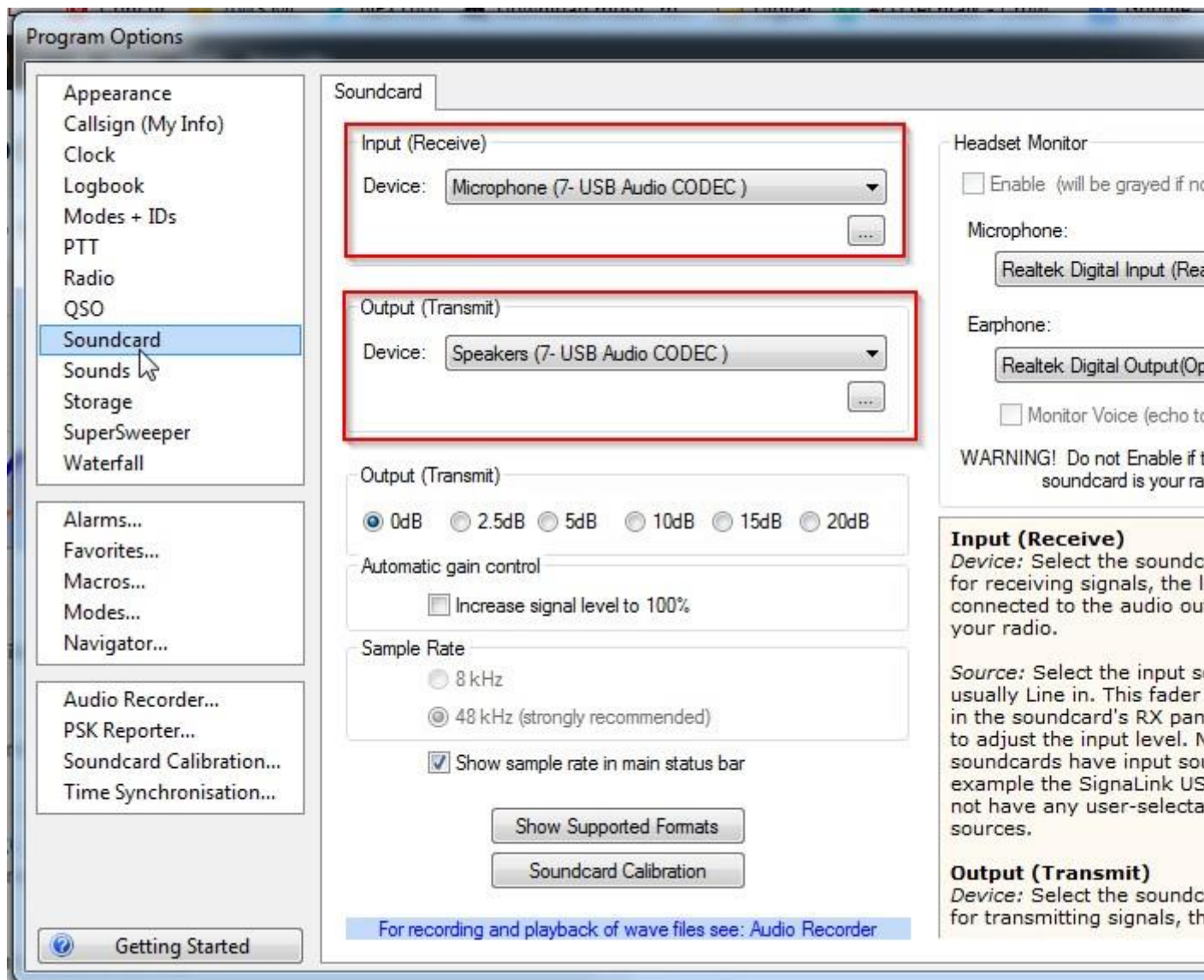
Via the DM780 options screen.

I prefer the serial line DTR option over via the HRD connection as it is consistent with the CW keying mechanism used in the next section and pulling the USB cable will drop the DTR line. Where as pulling the USB cable or shutting down the PC will not send a TX stop CAT command, to counter the TX start CAT command that HRD would use to place the radio in transmit.
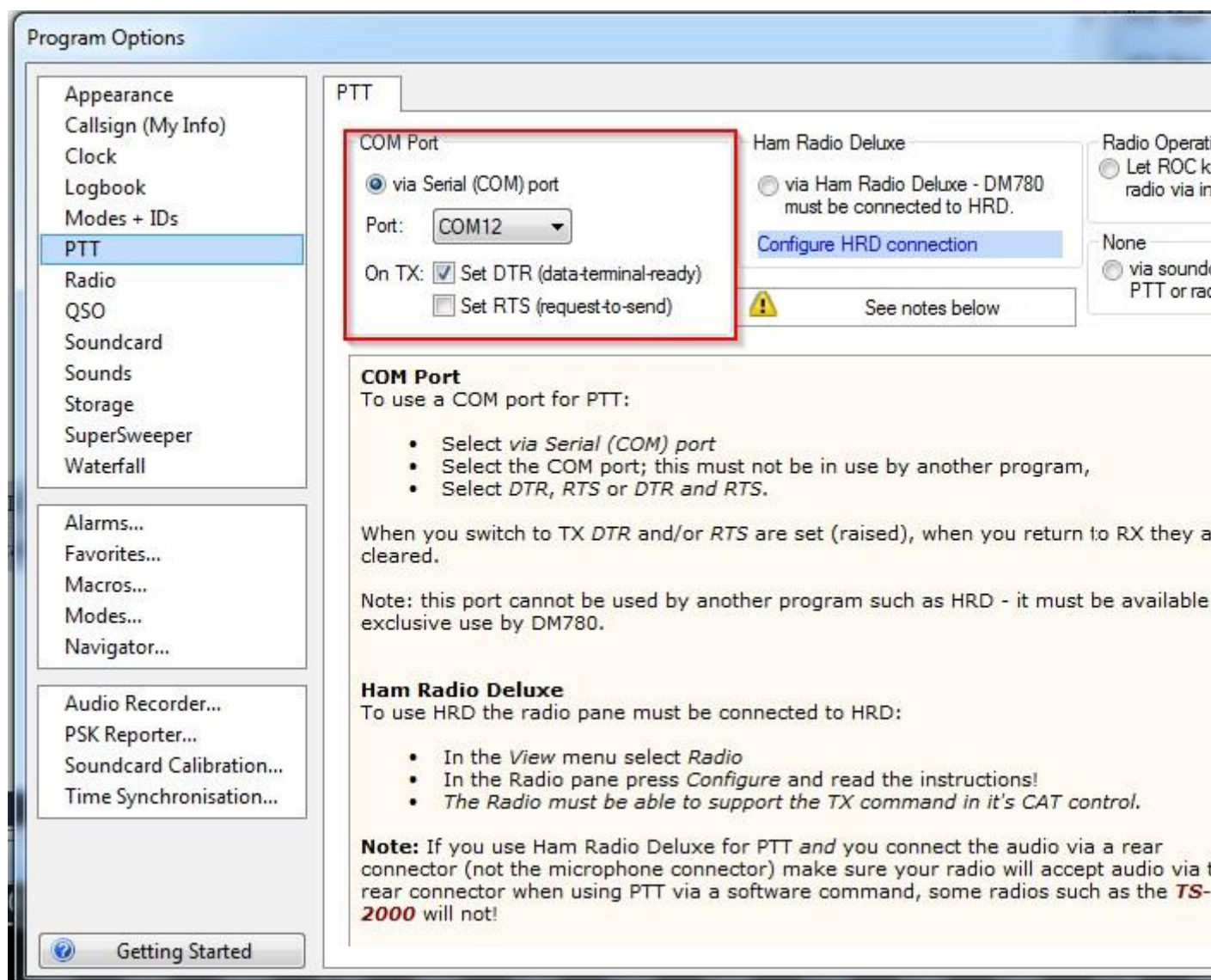
Configure CW keying
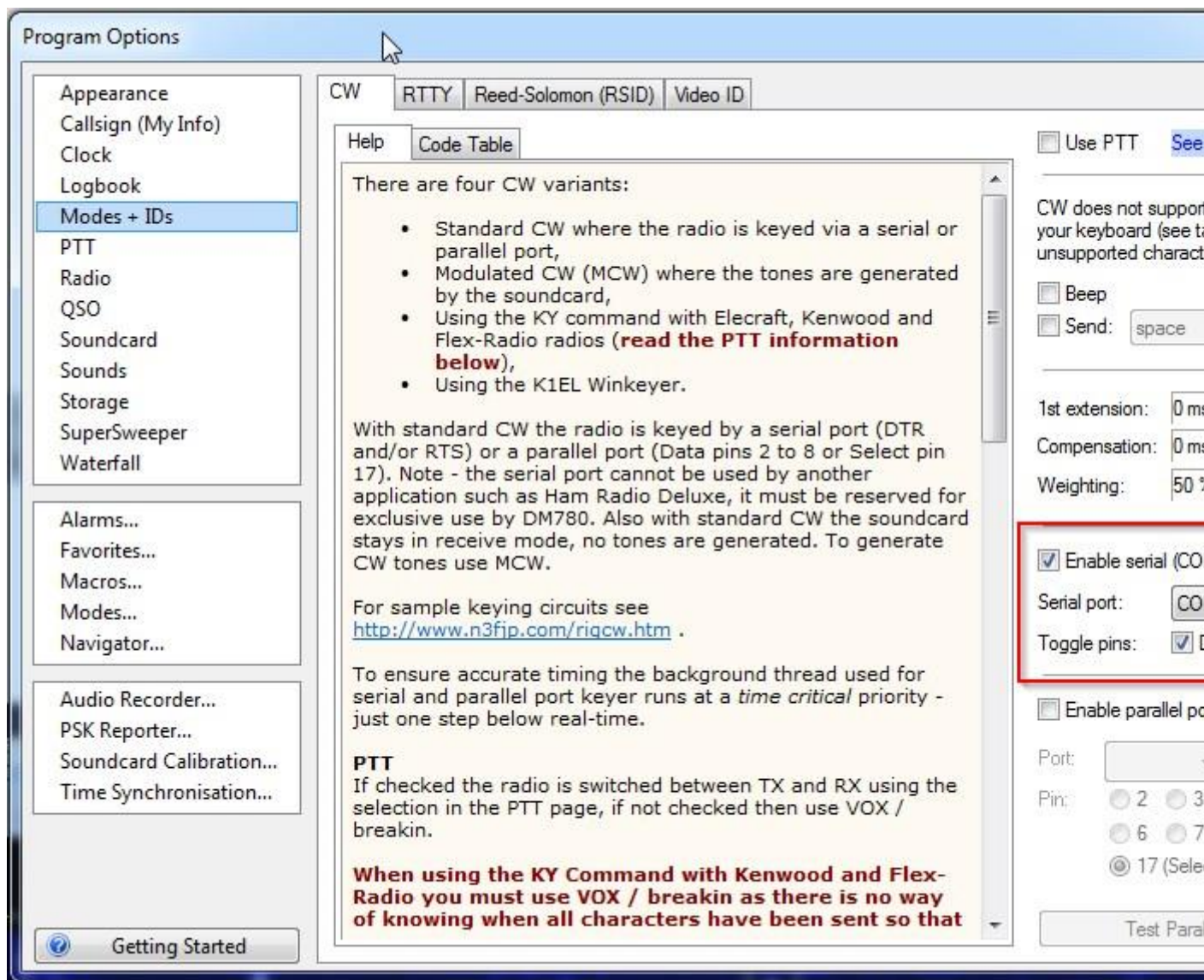
Configure the Sound card

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SET SOUND-CARD INITIAL GAIN LEVELS

Before taking it for a test drive on the air the initial gain level for the USB sound card which while physically inside the transceiver it is logically part of Windows. In my particular installation the FTDX3000 sound card shows up as Speakers "7-USB Audio CODEC" and Microphone "7-USB Audio CODEC".

In your system the number may be different but the rest of the text will be the same. Right click on each device, select properties and levels. Start out will a low level around 10 for you initial trials. You can tweak the TX value in DM780, here in the logical device config, and in the radio menu settings as shown above in the radio configuration section.

Sound

| Playback | Recording | Sounds | Communications |

Select a playback device below to modify its settings:

Speakers
6- USB PnP Sound Device
Ready

Speakers
7- USB Audio CODEC
Ready

ASUS VS247-4
NVIDIA High Definition Audio
Ready

ASUS VS247-8
NVIDIA High Definition Audio
Ready

Speakers
Realtek High Definition Audio
Default Device

Configure   Set Default ▼   Properties

OK   Cancel   Apply

That should be enough to get you on the air. Perform a few test transmissions to get the the audio levels in DM780, the sound card and in the radio setup options to achieve the ALC levels recommended for your mode. Normally you are striving for no ALC deflection. Set the carrier level in the radio either via the front panel or inside the menu system to the power level desired and have fun.

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TROUBLESHOOTING

If you have trouble getting the PC to talk to the CAT port on the Radio, I would suggest downloading from the Yaesu website the PCC-3000 package.

It presents a very simple interface to the radio and is simple to setup and less may be more by using this simple app to verify radio connectivity. Versus the more capable and more complex HRD Suite.

The PCC-3000 package is what you want, very simple to run no installation is needed.

25-July-2015 Update Note!, a later version of this package is now available on the Yaesu website. Use whatever version is available.

Amateur Radio \ Software

FTDX3000 USB Driver (Virtual COM Port Driver) (3.49 MB)
FTDX3000 Update Firmware Information 9-4-14 (104.15 KB)
FTDX3000 Firmware Update Manual (377.36 KB)
FTDX3000 Update Software DSP (V0547) 9-4-14 (1.93 MB)
PCC-3000 Software V1.01 and Reference Manual (10/24/14) (2.81 MB)
FTDX3000 USB Driver Installation Manual (396.08 KB)

73's until next time, Jay

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