

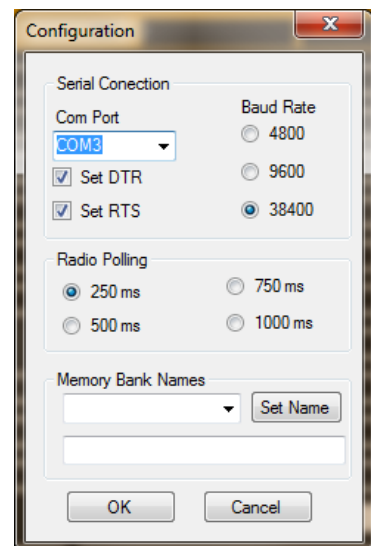
Yaesu FT-857 CAT Controller

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Purpose: This program was designed out of necessity. After a number of years riding around in the truck and the hot Arizona sun, the LCD display in the control head started losing pixels such that the display became nearly impossible to read. While it is a bit easier to read in the house and out of the direct sunlight, it was time to get the display replaced. As luck would have it, or not, my unit is an early 857D model that I purchased back in the spring of 2005 and that particular display unit is no longer used in the current production of radios and no longer available. As the odds of getting a new display are higher than the current \$500 million power ball drawing this week, I decided that I would build my own CAT control software.

While Yaesu does make fine radios, their documentation is far from being stellar. The documentation of the Application Programmers Interface(API) for all of their radios is truly dismal at best. I think that each program manager for a radio hired some 15 year-old hacker off the street to devise a complete and unique API for each radio, translated it into Swahili, then translated it again back to English by some Japanese guy who failed the ESL (English as a Second Language) test 27 times! Needless to say this was an exercise in raising my normally low blood pressure. I will have to give Yaesu some credit as their newer radios are now using the Kenwood Command set.

Setup: When you initially start the program, it comes up in the hibernated, or disabled mode with the exception of the three buttons in the upper left corner: Exit, Start/Stop and Setup. Configuration as shown at the right. Configure your serial port to match the port where you have the cable attached that is used to control the radio and select that port from the Com Port drop-down box.



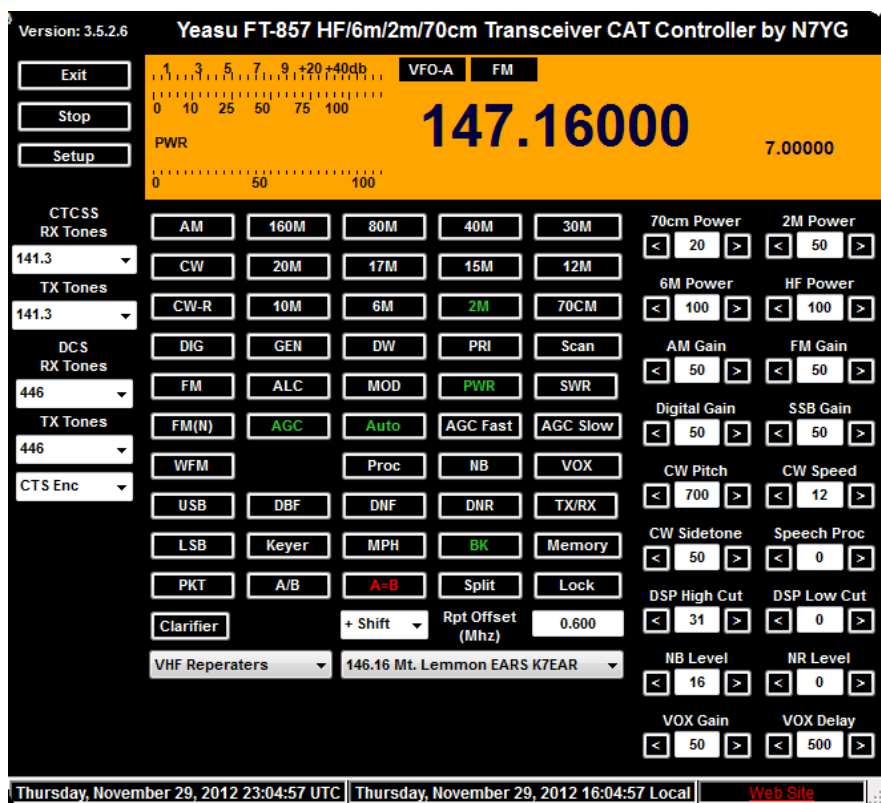
If you are using a USB-to-Serial interface cable, you will probably have to assert the Data Terminal Ready(DTR) and/or Receive to Send (RTS) lines to properly power the interface cable. Check the appropriate boxes where necessary.

Select the Baud Rate, the speed the interface will use to communicate between the radio and the computer. The default for the FT-857, if you have not changed it is 9600 baud, but the radio is capable of 4800 and 38400. Refer to your owners manual on how to change it. This software works best at 38400.

The Radio Polling rate is the interval at which the computer sends a request for the radio to dump it's data back to the computer. 250 ms (milliseconds) is 4 times each second. 250 ms should work for just about most computers unless you are using a horribly slow machine that came stock with Windows 3.1 or 95. If you find the frequency display jumping around

from time to time you may consider changing the polling rate. Click the OK button and those parameters will be stored in the registry for recall each time the program is executed. We will discuss the Memory Bank Names in the section on Memory Management.

Operation:



Before you start the interface, make sure the radio is powered on, and the VFO is set to VFO-A. There is no feedback from the radio on which VFO is selected. This will make sure the interface and the radios VFO's are sync'd. Click the Start/Stop button to enable the interface and bring it out of hibernation.

Once you see a frequency displayed and some of the button with green legends, the computer is communicating with the radio.

Change the frequency on the radio and you should see a corresponding change in

the program. Likewise, change a radio mode and you should see that annunciated in the display area of the program. If these two tests pass, then you have a good communication path between the computer and the radio.

With the exception of the mode buttons, the A/B button and the memory button, each buttons function will turn green if that function is activated. Hovering the mouse over any of the controls will pop-up a help bubble that gives a small description of that specific function. The sliders on the left side of the function area will increase or decrease that specific function. You can also type a value directly into the sliders. The red A=B function is not yet activated, but will be in the final version.

Double click the main frequency to change it and enter a new frequency in Mhz.

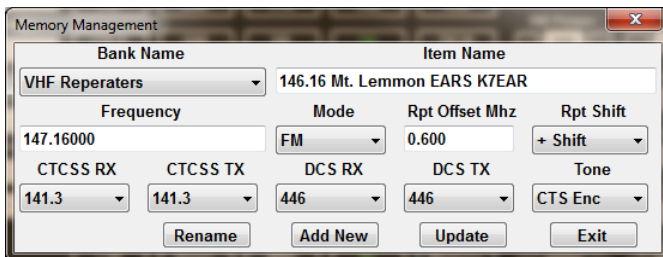
Each of the band buttons have a memory that will store the last used frequency and save that into the registry so you can recall that frequency when you return that to band. The GEN band will be displayed if you are using a frequency that is outside any of the allocated amateur bands. Tone selection on the left side of the display allows the user to select between CTCSS or DCS tone systems and separate tones for transmit and receive.

Selecting Stop, will send the program into hibernation or disabled mode. When this happens the last frequency, mode, tone and repeater selection will be saved for recalled when the program is again activated. The communication port will also be closed and the setup option will become available again. This option is disabled to prevent the user from accidentally changing the COM port or the baud rate while the radio and computer are connected.

Memory Management: Yaesu, for some strange reason, did not include memory manipulation in the API as it has done with other radios such as my FT-920. The only way available to read and write memory from a computer is to use the cloning procedure with appropriate software. So, I have included a simple interface for client side memory storage and manipulation. You have an infinite number of memory locations to store memory channels. There are 20 memory banks available that can store as many memory channels as you wish. All data is stored in the registry, so you are actually limited by the amount of computer memory and disk storage.

The memory bank labels default starting at Bank 0 through Bank 19. The user has the ability to edit these names to something more descriptive. Referring to the Setup graphic at the beginning of this discussion you will see an area at the bottom of the user window called Memory Bank Name. To change a name, select one of the 20 listed names from the drop-down box, type a new name in the text box and click the Set Name button. You can use descriptive names such as VHF Repeaters, UHF Repeaters, 49 Meter SWL, etc...

Adding a new memory channel is very simple. Set the radio to the frequency of choice and select the appropriate tones, repeater split and offset if necessary. Click the Memory Button and the following dialog will appear:



The bank name you selected will transfer to the dialog, and if the memory channel has already been defined, that name will transfer along with the appropriate channel information. If you want to rename this specific channel, click the Rename button and enter the new name in the input box that will be displayed. If you

need to update any of the channel information for the specific channel, click the Update button. To add a new channel to the bank, type a descriptive name to describe the channel and click the add button. If you know the frequencies for other channels you desire, update the channel information, type in a new name, and select a new bank name if necessary and click the Add button. The Exit button will close the Memory Management dialog.

This is a fairly simple controller that will provide the user with most of the functions necessary to control the radio from a computer. If you find this program useful, please consider a donation at my web site <http://www.n7yg.com>

